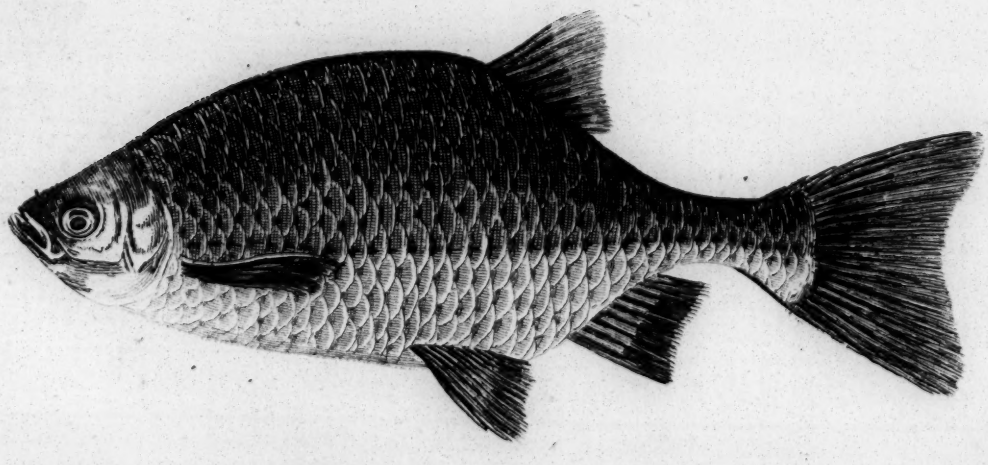
BRITISH ZOOLOGY.

CLASS III. REPTILES

IV. FISH.



N° 172.

LONDON.
Printed for Benj. White,
MDCCLXXVI.

BRITISH ZOOLOGY.

VOL. III.

CLASS III. REPTILES.

IV. FISH.

WARRINGTON:

PRINTED BY WILLIAM EYRES,

FOR BENJAMIN WHITE, AT HORACE'S HEAD,

FLEET-STREET, LONDON.

MDCCLXXVI.

CLASS III.

REPTILES.

All the works of the LORD are good, and he will give every needful thing in due ſeaſon.

So that a man cannot ſay this is worſe than that, for in time they ſhall all be well approved.

ECCLESIASTICUS XXXIX. 33, 34.

REPTILES.

WE are now to conſider the claſs of Reptiles, which are, for the moſt part, objects of deteſtation; but however the opinion of the world may be, if a writer undertakes a general hiſtory of animals, he muſt include them: they form at leſt one link in the chain of beings, and may therefore be viewed with a degree of pleaſure by a philoſophic eye.

But notwithſtanding the prejudice againſt this claſs is almoſt univerſal, is it founded on reaſon? In ſome it may be owned that the outward form is diſagreeable, while the noxious qualities of others are juſtly productive of terror: but are we on that account to reject them? The more fatal they are, the more deeply we ſhould enquire into their effects, that we may be capable of relieving thoſe who are ſufferers, and ſecure others from the ſame misfortune. But if we duly weigh their noxious qualities, we ſhall, with our moral poet, find

"*All partial evil univerſal good.*"

The teeth of wild beaſts, and of ſerpents, are not only created as inſtruments of vengeance, but are ſalutary in leſſening the numbers of thoſe animals which are highly uſeful in the degree, and only hurtful in their exceſs; but if their bad qualities are ſerviceable, we are more indebted to their good ones than we chuſe to acknowlege.

But many of the animals that form this claſs are of immediate benefit to mankind. The Turtle, or Sea-Tortoiſe, ſupplies the torrid zone with a wholeſome and delicious food, as the epicures of our own country can atteſt. Frogs are a food in ſeveral parts, as Lizards and Serpents are in others.

The medicinal virtues of the Viper are partly exploded by the moderns, but time, the overthrower of ſyſtems, as well as empires, may reſtore it to the rank it held with the antients. The *Lacerta Scincus* is, however, yet eſteemed in the *Eaſt* for its ſalubrious qualities, and even Toads have contributed to the eaſe of patients in the moſt inveterate of all diſeaſes.

Had I followed *Linnæus*, and included the Cartilaginous Fiſh in this claſs, there would have been ample room for panegyric, for it is very doubtful whether any are pernicious; but the uſe of many, either as food or for mechanical purpoſes, were never queſtioned.

But if the external figure of the reptile tribe is diſguſting, they have one general beauty, an apt configuration of parts for their way of life, nor are

are they deſtitute of their peculiar graces: the fine diſpoſition of plates in the ſhell of the Tortoiſe, with the elegant ſymmetry of their colors, muſt ſtrike even common obſervers, while the eye of the deſpiſed Toad has a luſtre denied to more pleaſing forms. The frolicſome agility of Lizards enlivens the dried banks in hot climates; and the great affection which ſome of them ſhew to mankind, ſhould farther engage our regard and attention.

The wreathing of the ſnake, with the vivid die of its ſkin, are certainly graceful, tho' from the dread of ſome particular ſpecies which are venemous, we have acquired an antipathy for the whole. The antients, who conſidered the Serpent as an emblem of health, could aſſociate pleaſing ideas with this animal. We therefore find it an ornament at every entertainment, and in every ſcene of mirth, both in painting and in ſculpture. *Virgil* adopted this notion, and has accordingly deſcribed it with every beauty both of form and color,

Adytis cum lubricus anguis ab imis
Septem ingens gyros, ſeptena volumina traxit;
Amplexus placidé tumulum, lapſuſque per aras:
Cærulæa cui terga notæ, maculoſus et auro
Squamam incendebat fulgor; ceu nubibus arcus
Mille trahit varios adverſo ſole colores.

V. 84.

The teeth of wild beaſts, and of ſerpents, are not only created as inſtruments of vengeance, but are ſalutary in leſſening the numbers of thoſe animals which are highly uſeful in the degree, and only hurtful in their exceſs; but if their bad qualities are ſerviceable, we are more indebted to their good ones than we chuſe to acknowlege.

But many of the animals that form this claſs are of immediate benefit to mankind. The Turtle, or Sea-Tortoiſe, ſupplies the torrid zone with a wholeſome and delicious food, as the epicures of our own country can atteſt. Frogs are a food in ſeveral parts, as Lizards and Serpents are in others.

The medicinal virtues of the Viper are partly exploded by the moderns, but time, the overthrower of ſyſtems, as well as empires, may reſtore it to the rank it held with the antients. The *Lacerta Scincus* is, however, yet eſteemed in the *Eaſt* for its ſalubrious qualities, and even Toads have contributed to the eaſe of patients in the moſt inveterate of all diſeaſes.

Had I followed *Linnæus*, and included the Cartilaginous Fiſh in this claſs, there would have been ample room for panegyric, for it is very doubtful whether any are pernicious; but the uſe of many, either as food or for mechanical purpoſes, were never queſtioned.

But if the external figure of the reptile tribe is diſguſting, they have one general beauty, an apt configuration of parts for their way of life, nor

are they deſtitute of their peculiar graces: the fine diſpoſition of plates in the ſhell of the Tortoiſe, with the elegant ſymmetry of their colors, muſt ſtrike even common obſervers, while the eye of the deſpiſed Toad has a luſtre denied to more pleaſing forms. The frolicſome agility of Lizards enlivens the dried banks in hot climates; and the great affection which ſome of them ſhew to mankind, ſhould farther engage our regard and attention.

The wreathing of the ſnake, with the vivid die of its ſkin, are certainly graceful, tho' from the dread of ſome particular ſpecies which are venemous, we have acquired an antipathy for the whole. The antients, who conſidered the Serpent as an emblem of health, could aſſociate pleaſing ideas with this animal. We therefore find it an ornament at every entertainment, and in every ſcene of mirth, both in painting and in ſculpture. *Virgil* adopted this notion, and has accordingly deſcribed it with every beauty both of form and color,

Adytis cum lubricus anguis ab imis
Septem ingens gyros, ſeptena volumina traxit;
Amplexus placidé tumulum, lapſuſque per aras:
Cærulæa cui terga notæ, maculoſus et auro
Squamam incendebat fulgor; ceu nubibus arcus
Mille trahit varios adverſo ſole colores.

V. 84.

From the deep tomb, with many a ſhining fold,
An azure ſerpent roſe, in ſcales that flam'd with gold:
Like heaven's bright bow his varying beauties ſhone
That draws a thouſand colors from the ſun:
Pleas'd round the altars and the tomb to wind,
His glittering length of volumes trails behind.

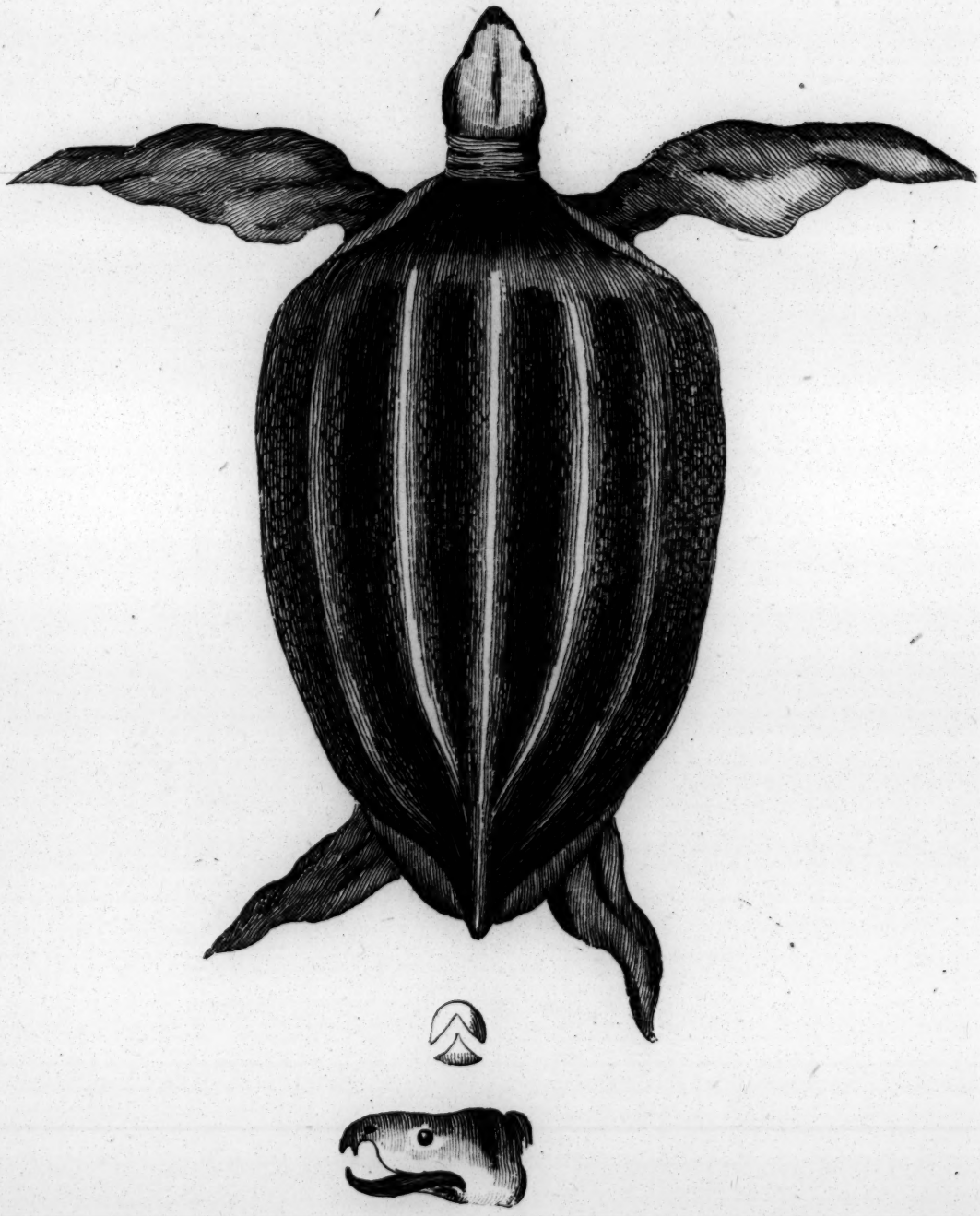
PITT.

But if after all ſome lively writer ſhould purſue the Naturaliſts with more wit than argument, and more humor than good-nature, it ſhould be endured with patience. Ridicule is, however, not the teſt of truth, tho' when joined to ſatyr, it ſeldom fails of ſeducing the many who would rather laugh than think. Should this prove the caſe in the preſent inſtance, let the author be allowed to ſkreen himſelf from cenſure, by ſaying he writes not to the many, but the few; to thoſe alone who can examine the parts with a view to the *whole*, and who ſcorn to deſpiſe even the moſt deformed, or the moſt minute work of an all-wiſe CREATOR.

GENERA.

I. TORTOISE.
II. FROG.
III. LIZARD.
IV. SERPENT.

CORIACEOUS TORTOISE.



CLASS III.

REPTILES.

Body covered either with a ſhell or ſtrong hide, divided by ſutures; four fin-like feet; a ſhort tail. I. TORTOISE.

Teſtudo coriacea ſive Mercurii. *Rondel.* 450? *Geſner piſc.* 946?
Teſtudo coriacea? Teſtudo pedibus pinniformibus muticis, teſta coriacea, cauda angulis ſeptem exaratis. *Lin. ſyſt.* 350.
Turtle. *Borlaſe Cornwall,* 285. *Plate* 27. 1. CORIACEOUS.

THIS ſpecies is common to the *Mediterranean,* and to our ſouthern ſeas, and is not, as far as we know, diſcovered in any other.

Two were taken on the coaſt of *Cornwall* in the mackrel nets, of a vaſt ſize, a little after *Midſummer* 1756; the largeſt weighed eight hundred pounds, the leſſer near ſeven hundred. A third, of equal weight with the firſt, was caught on the

coaſt of *Dorſetſhire*, and depoſited in the *Leverian Muſeum*.

The length of the body is four feet ten inches; of the head nine inches and a half; of the neck three; or of the whole five feet twelve. The upper jaw bifurcated at the end: the extremity of the lower ſharp, claſping into the fork of the upper. The noſtrils ſmall and round.

The breadth of the body in the largeſt part is three feet. The length of the fore fins two feet ſeven: of the hind thirteen inches and a half: are ſmooth, grow pointed to the extremity, and are deſtitute of toes. Theſe fins are ſtuffed: perhaps the bones might have been taken out; for in the figure given by *Rondeletius*, which agrees in all other reſpects with this ſpecies, there is appearance of toes, and even nails.

The body is covered with a ſtrong hide, exactly reſembling black leather, deſtitute of ſcales, but marked with the appearance. The back is divided into five longitudinal flutings or grooves, with as many ſharp but ſmooth riſings.

This ſpecies is ſaid to be extremely fat: but the fleſh coarſe and bad *, according to the report made by writers who had opportunity of taſting them in the *Mediterranean* ſea. I am informed that the *Carthuſians* will eat no other than this ſpecies.

* *Rondeletius. Boſſuet.*

Body

Body naked.
Four legs, the feet divided into toes.
No tail.

II.
FROG.

Βατραχος. *Ariſt. Hiſt. an. Lib.* IV. c. 9.
La Grenoille. *Belon poiſſons*, 48.
Rana fluviorum. *Rondel.* 217.
Rana aquatica innoxia. *Geſner quad. ovip.* 46. *Aquatil* 805.
Rana aquatica. *Raii ſyn. quad.* 447.
Waſſer Froſche. *Meyer an.* I. *Tab.* 52.
Rana temporaria. R. dorſo planiuſculo ſubangulato. *Lin. ſyſt.* 357.
Groda, Fro, Klaſſa. *Faun. Suec.* No. 102.
Rana. *Gronov. Zooph.* No. 62.

2. COMMON.

SO common and well-known an animal requires no deſcription; but ſome of its properties are ſo ſingular, that we cannot paſs them unnoticed.

Its ſpring or power of taking large leaps is remarkably great, and it is the beſt ſwimmer of all four-footed animals. Nature hath finely adapted its parts for thoſe ends, the fore members of the body being very lightly made, the hind legs and thighs very long, and furniſhed with very ſtrong muſcles.

While in a tadpole ſtate, it is entirely a water animal; the work of generation is performed in that element, as may be ſeen in every pond during ſpring;

ſpring; when the female remains oppreſſed by the male for a number of days.

GENERATION. The work of propagation is extremely ſingular, it being certain that the frog has not a *penis intrans*; there appears a ſtrong analogy in this caſe between a certain claſs of the vegetable kingdom and thoſe animals; for it is well known, that when the female frog depoſits its ſpawn, the male inſtantaneouſly impregnates it with what we may call a *farina fœcundans*, in the ſame manner as the male *Palm* tree conveys fructification to the flowers of the female, which would otherwiſe be barren *.

As ſoon as the frogs are releaſed from their tadpole ſtate, they immediately take to land; and if the weather has been hot, and there fall any refreſhing ſhowers, you may ſee the ground for a conſiderable ſpace perfectly blackened by myriads of theſe animalcules, ſeeking for ſome ſecure lurking places. Some philoſophers † not giving themſelves time to examine into this phænomenon, imagined them to have been generated in the clouds, and ſhowered on the earth; but had they, like our *Derham* ‡, but traced them to the next pool, they would have found a better ſolution of the difficulty.

As frogs adhere cloſely to the backs of their own ſpecies, ſo we know they will do the ſame by fiſh: *Walton* § mentions a ſtrange ſtory of their deſtroy-

* *Shaw's Travels*, 224. *Haſſelquiſt Trav. Engl. Ed.* 416.
† *Rondeletius*, 216. *Wormii Muſ.* 327.
‡ *Ray's Wiſdom Creat.* 316. § *Complete Angler*, 161.

ing

Frog

In the hot season, called by the country people the Paddock Moon the mouths are closed so that he cannot open them.

Bernard III. 12

This is quite true. I have twice observed it. The last time in the months of July & August in a very hot season

At this time I observed that every toe had a knob at the extremity.

Hartley f. with a low Tarsus present in Stayn. Coll. p. 56 in the Sixth edit. int. Vendroonem

Morton in his Northampton. 338 explains the cause of the supposed shower of f. Mr Hawk. Walton 4th edit. p 443

Frog couples with the toad. Morton 440

Has not the faculty, like the toad, of emitting a black liquid. 440

Changes their colour. (Q. Theirdian. F.D.) Morton 441

Mr Walker (q. my friend?) says their mouths are closed for 3 months in every year

Gesner III. 45 mentions the closing of their mouths

See Remarks only copies Morton who in p. 440. 441 has
more on the closing of the months Dethers curious matter

See Hawkins's Walton & Cotton Angl. Magnus is qu
See Libraries p. 666 in Hawkins & also p. 153 of his
first edition

Carlisle in his Lecture on the egg said that the
Cutinous substance vulgarly called falling Stars
in the Spawning of the Female Frog when the
Male frogs rejects some part of the roe that is offensive
unwholesome which is often found to contain
part of a frog itself or even a young one.

ing pike; but that they will injure, if not entirely kill carp, is a fact indiſputable, from the following relation: a very few years ago, on fiſhing a pond belonging to Mr. *Pit*, of *Encomb*, *Dorſetſhire*, great numbers of the carp were found each with a frog mounted on it, the hind legs clinging to the back, the fore legs fixed in the corner of each eye of the fiſh, which were thin and greatly waſted, teized by carrying ſo diſagreeable a load. Theſe frogs we imagine to have been males diſappointed of a mate.

The croaking of frogs is well known, and from that in fenny countries they are diſtinguiſhed by ludicrous titles, thus they are ſtiled *Dutch Nightingales* and *Boſton Waites*; even the *Stygian* frogs have not eſcaped notice, for *Ariſtophanes* hath gone farther, and formed a chorus of them.

Βρεκεκέξ, κοάξ, κοαξ,
Βρεκεκεξ, κοαξ, κοαξ,
Λιμναῖα κρηνῶν τεκνα *.

Brekekex, coax, coax,
Brekekex, coax, coax,
The offspring of the pools and fountains.

PERIODICAL SILENCE.

Yet there is a time of year when they become mute, neither croaking nor opening their mouths for a whole month: this happens in the hot ſeaſon, and that is in many places known

* *Comedy of the Frogs.*

to

to the country people by the name of the *Paddock Moon*. I am informed that for that period, their mouths are ſo cloſed, that no force (without killing the animal) will be capable of opening them.

Morton * endeavours to find a reaſon for their ſilence, but tho' his facts are true, he is unfortunate in his philoſophy. Frogs are certainly endued (as he well obſerved) with a power of living a good while under water without reſpiration, which is owing to their lungs being compoſed of a ſeries of bladders: but he miſtakes the nature of air, when he affirms that they receive a quantity of cool air, and dare not open their mouths for a month, from a dread of admitting a warmer into their lungs. It is hardly neceſſary to ſay, that in whatever ſtate the air was received, it would aſſimilate itſelf to the external atmoſphere in a ſhort time. We muſt leave the fact to be accounted for by farther experiments. But from what we do know, we may partly vindicate *Theophraſtus*, and other antients, about the ſilence of the frogs at *Seriphus*. That philoſopher affirms it, but aſcribes it to the coldneſs of the waters in that iſland: Now when Monſieur *Tournefort* was there, the waters were lukewarm, and the frogs had recovered their voices †. Is it not probable that *Theophraſtus* might be at *Seriphus* at that ſeaſon when the frogs were mute, and having never obſerved it elſewhere,

* *Hiſt. Northampt.* 441.

† *Tournefort's voy.* I. 142.

might

might conclude their ſilence to be general as to the time, but particular as to the place. *Ælian**, who quotes *Theophraſtus* for the laſt paſſage, aſcribes the ſame ſilence to the frogs of the lake *Pierus* in *Theſſaly*, and about *Cyrene* in *Africa*: but he is ſo uncertain a writer, that we cannot affirm whether the ſpecies of the *African* frogs is the ſame with ours.

FOOD. Theſe, as well as other reptiles, feed but a ſmall ſpace of the year. The food of this genus is flies, inſects, and ſnails. Toads are ſaid to feed alſo on bees, and to do great injury to thoſe uſeful inſects.

During winter frogs and toads remain in a torpid ſtate: the laſt of which will dig into the earth, and cover themſelves with almoſt the ſame agility as the mole.

Rana gibboſa. *Geſner piſc.* 809.
Rana eſculenta. *Lin. ſyſt.* 357. *Faun. Suec.* No. 279.

R. corpore angulato, dorſo tranſverſè gibbo, abdomine marginato. *Ibid.*

3. EDIBLE.

THIS differs from the former in having a high protuberance in the middle of the back, forming a very ſharp angle. Its colors are alſo more vivid, and its marks more diſtinct; the ground

* *Ælian, Lib.* III. *ch.* 35, 37.

color

color being a pale or yellowiſh green, marked with rows of black ſpots from the head to the rump.

This and, we think, the former, are eaten. We have ſeen in the markets at *Paris* whole hampers full, which the venders were preparing for the table, by ſkinning and cutting off the foreparts, the loins and legs only being kept. Our ſtrong diſlike to theſe reptils, prevented a cloſe examination into the ſpecies.

4. TOAD.

Φρυνος. *Ariſt. Hiſt. an. lib.* ix. *c.* I. 40.
Bufo. *Virg. Georg.* I. 184.
Rubeta. *Plin. lib.* VIII. *c.* 31.
Rubeta ſc. Phrynum. *Geſner piſc.* 807. *Rondel,* 222.
Bufo ſive Rubeta. *Raii ſyn. quad.* 252.
Bufo rubetarum. *Klein quad.* 122.
Rana Bufo. R. corpore ventricoſo, verrucoſo lurido fuſcoque. *Lin. ſyſt.* 354.
Padda, Taſſa. *Faun. ſuec.* No. 275.
Gronov. Zooph. No. 64.

THE moſt deformed and hideous of all animals; the body broad, the back flat, and covered with a pimply duſky hide; the belly large, ſwagging, and ſwelling out; the legs ſhort, and its pace labored and crawling: its retreat gloomy and filthy: in ſhort, its general appearance is ſuch as to ſtrike one with diſguſt and horror; yet we have been told by thoſe who have reſolution to view it with attention, that its eyes are fine: to this it

ſeems

ſeems that *Shakeſpear* alludes, when he makes his *Juliet* remark,

Some ſay the lark and loathed toad change eyes.

As if they would have been better beſtowed on ſo charming a ſongſter than on this raucous reptile.

But the hideous appearance of the toad is ſuch as to make this one advantageous feature overlooked, and to have rendered it in all ages an object of horor, and the origin of moſt tremendous inventions. *Ælian* * makes its venom ſo potent, that *Baſiliſk*-like, it conveyed death by its very look and breath; but *Juvenal* is content with making the *Roman* ladies, who were weary of their huſbands, form a potion from its intrails †, in order to get rid of the good man.

Occurrit Matrona potens, quæ molle Calenum
Porrectura viro miſcet ſitiente rubetam. *Sat.* I. 68.

To quench the huſband's parching thirſt, is brought
By the great Dame, a moſt deceitful draught;
In rich *Calenian* wine ſhe does infuſe,
(To eaſe his pains) the toad's envenom'd juice.

This opinion begat others of a more dreadful nature; for in after-times ſuperſtition gave it preternatural powers, and made it a principal ingredient in the incantations of nocturnal hags:

* *Hiſt. an. lib.* ix. *c.* 11.
† *Sat.* vi. 658. Vide *Ælian Hiſt. an. lib.* xvii. *c.* 12. and 15.

Toad

Toad that under the cold ſtone,
Days and nights has, thirty-one,
Swelter'd venom ſleeping got,
Boil thou, *firſt* i'th' charmed pot.

We know by the poet that this charm was intended for a deſign of the firſt conſideration, that of raiſing the dead from their repoſe, and bringing before the eyes of *Macbeth* a hateful ſecond-ſight of the proſperity of *Banquo*'s line.

This ſhews the mighty powers attributed to this animal by the dealers in the magic art; but the powers our poet indues it with, are far ſuperior to thoſe that *Geſner* aſcribes to it: *Shakeſpear*'s witches uſed it to diſturb the dead; *Geſner*'s, only to ſtill the living, *Ut vim coeundi ni fallor, in viris tollerent* *.

TOAD-STONE. We may add here another ſuperſtition in reſpect to this animal: it was believed by ſome old writers to have a ſtone in its head, fraught with great virtues medical and magical: it was diſtinguiſhed by the name of the Reptile, and called the *Toad-Stone*, *Bufonites*, *Crapaudine*, *Krottenſtein* †; but all its fancied powers vaniſhed on the diſcovery of its being nothing but the foſſil tooth of the *ſea-wolf*, or of ſome flat-toothed fiſh, not unfrequent in our iſland, as well as ſeveral other countries; but we may well excuſe this tale, ſince *Shakeſpear* has extracted from it a ſimile of uncommon beauty:

* *Hiſt. quad. ovip.* 72.

† *Boet. de Boot. de Lap. et Gem.* 301. 303.

Sweet

Sweet are the uſes of adverſity,
Which, like the toad, ugly and venomous,
Wears yet a precious jewel in his head.

But theſe fables have been long exploded: we ſhall now return to the notion of its being a poiſonous animal, and deliver, as our opinion, that its exceſſive deformity, joined to the faculty it has of emitting a juice from its pimples, and a duſky liquid from its hind parts, is the foundation of the report.

That it has any noxious qualities we have been unable to bring proofs in the ſmalleſt degree ſatisfactory, though we have heard many ſtrange relations on that point.

On the contrary, we know ſeveral of our friends who have taken them in their naked hands, and held them long without receiving the leſt injury: It is alſo well known that quacks have eaten them, and have beſides ſqueezed their juices into a glaſs, and drank them with impunity. NOT POISONOUS.

We may ſay alſo, that theſe reptiles are a common food to many animals; to *buzzards*, *owls*, *Norfolk plovers*, *ducks*, and *ſnakes*, who would not touch them were they in any degree noxious.

So far from having venomous qualities, they have of late been conſidered as if they had beneficent ones. We wiſh, for the benefit of mankind, that we could make a favorable report of the many attempts of late to cure the moſt terrible of diſeaſes

the *cancer*, by the application of live toads; but, alas, they ſeem only to have rendered a horrible complaint more loathſome. My enquiries on this ſubject, and ſome further particulars relating to the hiſtory of this animal, may be found in the Appendix.

In a word, we may conſider the toad as an animal that has neither good nor harm in it; that being a defenceleſs creature, nature had furniſhed it, inſtead of arms, with a moſt diſguſting deformity, that ſtrikes into almoſt every being capable of annoying it, a ſtrong repugnancy to meddle with ſo hideous and threatening an appearance.

Generation. The time of their propagation is very early in the ſpring: at that ſeaſon the females are ſeen crawling about oppreſſed by the males, who continue on them for ſome hours, and adhere ſo faſt as to tear the very ſkin from the parts they ſtick to. They ſpawn like frogs; but what is ſingular, the male affords the female obſtetrical aid, in a manner that will be deſcribed in the Appendix.

To conclude this account with the marvellous, this animal is ſaid to have often been found in the midſt of ſolid rocks, and even in the centre of growing trees, impriſoned in a ſmall hollow, to which there was not the leaſt adit or entrance *: how the animal breathed, or how it ſubſiſted (ſuppoſing the poſſibility of its confinement) is paſt

* *Plot's Hiſt. Staff.* 247.

our

Toad. Le Romare. Gesner. Topsel. Aldrovandus.

Proof of Lizt. in Clock of Stone Monthly Mag. 1806 p. 610. Se also Anfarm mag. vol. XVII. 16. 212. Se Romare I. 338

2. how they prey of the land-toad are hatched, out of water? Se Romare p. 296

Mentioned in the Count. in winter. Gesner

Mr. Ward assured me that he had himself seen the combat between a toad & a spider

our comprehenſion. *Plot*'s * ſolution of this phænomenon is far from ſatisfactory; yet as we have the great *Bacon*'s † authority for the fact, we do not entirely deny our aſſent to it.

Rana Rubeta? *Lin. ſyſt.* 355. *Faun. Suec.* No. 101.
R. corpore verrucoſo, ano obtuſo ſubtus punctato. *Ibid.*

5. NATTER JACK.

THIS ſpecies frequents dry and ſandy places: it is found on *Putney Common*, and alſo near *Reveſby Abby*, *Lincolnſhire*, where it is called the *Natter Jack*. It never leaps, neither does it crawl with the ſlow pace of a toad, but its motion is liker to running. Several are found commonly together, and, like others of the genus, they appear in the evenings.

The upper part of the body is of a dirty yellow, clouded with brown, and covered with porous pimples, of unequal ſizes: on the back is a yellow line.

The upper ſide of the body is of a paler hue, marked with black ſpots, which are rather rough.

On the fore feet are four divided toes; on the hind five, a little webbed.

The length of the body is two inches and a quar-

* P. 249.

† *Nat. Hiſt. Cent.* vi. *Exp.* 570.

ter; the breadth, one and a quarter: the length of the fore legs one inch one-ſixth; of the hind legs, two inches.

We are indebted to *Joſeph Banks*, Eſq; for this account.

6. GREAT. INHABITS the woods near *Loch Ranſa*, in the *Iſle of Arran*.

Is double the ſize of the common frog: the body ſquare: belly great: legs ſhort: four toes on the fore-feet, four and a thumb to the hind; the ſecond outmoſt toe the longeſt. The color above, is a dirty olive, marked with great warty ſpots; the head alone plain. The color beneath whitiſh.

It leaped ſlowly.

Slender

Pl. II.

No 9.

BROWN LIZARD.



SCALY LIZARD.

No 7.



P. Mazell Del. et Sculp.

Lizard

Medallion. Tympis Mensa Philos. 20
Theodosius Pius

Slender naked body: four legs:
Divided toes on each:
Very long tail.

III. LIZARD.

Lacertus terreſtris lutea ſquamoſa anglica. *Raii ſyn. quad.* 264.
Plott's Hiſt. Staff. 252. *tab.* 22.
Lacerta agilis? L. cauda verticillata longiuſcula ſquamis acutis, collari ſubtus ſquamis conſtructo. *Lin. ſyſt.* 363.
Odla, Fyrfot. *Faun. Suec.* No. 284.
Lacerta, *Gronov. Zooph.* No. 60.
Little Brown Lizard. *Edw.* 225.
Padzher pou. *Borlaſe Cornwall*, 284. *tab.* 28.

7. SCALY.

THOSE we have ſeen differ in color, but agree in all other reſpects with the ſpecies deſcribed by Doctor *Plot*. Their length from the noſe to the hind-legs was three inches; from thence to the end of the tail three and three quarters.

Along the back was a black liſt; each ſide of that a brown one: then ſucceeded a narrow ſtripe, ſpotted alternately yellow and brown; beneath that a broad black one; thoſe ended a little beyond the hind-legs. The belly was yellow, and the ſcales large but even. The ſcales on the back ſmall; on the tail the ends projected: thoſe on the latter were varied with black and brown.

The legs and feet were duſky; on each foot were five toes, furniſhed with claws.

This ſpecies is extremely nimble: in hot weather it baſks on the ſides of dry banks, or of old trees; but on being obſerved immediately retreats to its hole.

The food of this ſpecies, as of all the other *Engliſh* lizards, is inſects: they themſelves of birds of prey. Each of our lizards are perfectly harmleſs; yet their form is what ſtrikes one with diſguſt, and has occaſioned great obſcurity in their hiſtory.

OTHER SPECIES.

Related to this ſpecies is the *Guernſey* lizard, which we are informed has been propagated in *England* from ſome originally brought from that iſland. We have alſo heard of a green lizard frequent near *Farnham*, which probably may be of that kind: but the moſt uncommon ſpecies we ever met with any account of, is that which was killed near *Woſcot*, in the pariſh of *Swinford*, *Worceſterſhire*, in 1741, which was two feet ſix inches long, and four inches in girth. The fore-legs were placed eight inches from the head; the hind-legs five inches beyond thoſe: the legs two inches long: the feet divided into four toes, each furniſhed with a ſharp claw. Another was killed at *Penbury*, in the ſame county. Whether theſe are not of exotic deſcent, and whether the breed continues, is what we are at preſent uninformed of.

II.



II.



I WARTY LIZARD.



8. WARTY.

Lacertus aquaticus. *Geſner quad. ovip.* 31.
Salamandra aquatica. *Raii ſyn. quad.* 273.
Lacerta paluſtris. L. cauda lanceolata mediocri, pedibus muticis palmis tetradactylis. *Lin. ſyſt.* 370.
Skrot-abborre, Gruffgrabbe. *Faun. Suec.* No. 281.
Lacerta Americana. *Seb. Muſ.* I. *tab.* 89. *fig.* 4, 5.
Salamandra alepidota verrucoſa. *Gronov. Zooph.* No. 47.

THE length of this ſpecies was ſix inches and an half, of which the tail was three and a quarter.

The irides yellow: the head and beginning of the back flat, and covered with ſmall pimples or warts, of a dark duſky color; the ſides with white ones: the belly, and the ſide of the tail, was of a bright yellow; the firſt ſpotted with black.

The tail was compreſſed ſideways, and very thin towards the upper edge, and ſlender towards the end.

The fore-feet divided into four toes; the hind into five; all without nails, duſky ſpotted with yellow.

Its pace is ſlow and crawling.

This ſpecies we have frequently ſeen in the ſtate we deſcribe, but are uncertain whether we ever met with it under the form of a *larve*. We have more than once found under ſtones and old logs, ſome very minute young lizards that had much the appearance of this kind: they were

perfectly formed, and had not the leaſt veſtiges of fins; ſo that circumſtance, joined to their being found in a dry place, remote from water, makes us imagine them to have never been inhabitants of that element, as it is certain many of our lizards are in their firſt ſtate.

At that period they have a fin above and below their tail; that on the upper part extends along the back as far as the head, but both drop off as ſoon as the animal takes to the land, being then no longer of any uſe.

Beſides theſe circumſtances that attend them in form of a *larve*, Mr. *Ellis* * has remarked certain pennated fins at the gills of one very common in moſt of our ſtagnating waters, and which is frequently obſerved to take a bait like a fiſh.

9. BROWN. Lacertus vulg. terreſtris ventre nigro maculato. *Raii ſyn. quad.* 264.
L. vulgaris. L. cauda tereti mediocri, pedibus unguiculatis, palmis tetradactylis, dorſo linea duplici fuſca. *Lin. ſyſt.* 370. *Faun. Suec.* No. 283.

THIS is three inches long: the body ſlender; the tail long, ſlightly compreſſed, ſmall and taper; that and the upper part of the body of a pale brown, marked on each ſide the back with a

* *Phil. Tran.* Vol. LVI. P. 191.

narrow

Fossil Crocodile

One found at Charmouth Dorset 16 feet long, now in
Mr. Sowerby's museum. It was found in a cliff of
Limestone 1815

Head of one near Bath at the village of Weston.

One found at Caen 1818

---

narrow black line reaching to the end of the tail: the belly of a pale yellow, marked with ſmall duſky ſpots; the toes formed like thoſe of the preceding.

Lacertus parvus terreſtris fuſcus oppido rarus. *Raii ſyn. quad.* 264. 10. LITTLE.

THIS ſpecies is mentioned by Mr. *Ray* in his liſt of the *Engliſh* lizards, without any other deſcription than is comprehended in the *ſynonym*.

Lacertus terreſtris anguiformis in ericetis. *Raii ſyn. quad.* 264. 11. ANGUINE.

WE remain alſo in the ſame obſcurity in reſpect to this ſpecies. It ſeems to be of that kind which connects the ſerpent and lizard genus, having a long and very ſlender body, and very ſmall legs. Such are the *Seps*, or *Lacerta Chalcidica* of *Raii ſyn. quad.* 272, the *Lacerta anguina* of *Linnæus*, 371, or that figured by *Seba*, *tom.* ii. *tab.* 68. under the name of *Vermis ſerpentiformis*.

Long

IV. SERPENT. Long and ſlender bodies, covered with ſcaly plates: No feet.

12. Viper.

Ἔχις. *Ariſt. Hiſt. an. lib.* iii. *c.* 1.
Vipera. *Virg. Georg.* iii. 417. *Plinii, lib.* x. *c.* 42.
Vipera. *Geſner Serp.* 71.
Viper, or Adder. *Raii ſyn. quad.* 285. *Borl. Corn.* 282. *tab.* 28.
Coluber Berus. *Lin ſyſt.* 377. Huggorm *Faun. Suec.* No. 286. C. Berus ſcutis abdom. 146. ſquamis caudæ. 39. *Ibid.*
Amæn. Acad. I. 527.

VIPERS are found in many parts of this iſland, but the dry, ſtony, and, in particular, the chalky countries abound with them. They ſwarm in many of the *Hebrides*.

They are viviparous, not but that they are hatched from an internal egg; being of that claſs of animals, of whoſe generation *Ariſtotle* * ſays, Εν αυτοις μεν ωοτοκει το τελειον ωον, εξω δε ζωοτοκει, *i. e.* They conceive a perfect egg within, but bring forth their young alive.

Providence is extremely kind in making this ſpecies far from being prolific, we having never heard of more than eleven eggs being found in one viper, and thoſe are as if chained together, and each about the ſize of a blackbird's egg.

* *De Gen. an. Lib.* III. *c.* 2.

two

No 12.
VIPER.
No 15.
BLIND WORM.
No 13.
RINGED SNAKE.

The viper grows ſeldom to a greater length than two feet; though once we ſaw a female (which is nearly a third larger than the male) which was almoſt three feet long.

The ground-color of this ſerpent is a dirty yellow; that of the female deeper. Its back is marked the whole length with a ſeries of rhomboid black ſpots, touching each other at the points; the ſides with triangular ones; the belly entirely black. DESCRIP.

There is a variety wholly black; but the rhomboid marks are very conſpicuous even in this, being of a deeper and more gloſſy hue than the reſt. *Petiver* calls it the *Vipera Anglica Nigricans. Pet. Muſ.* No. 204 *.

The head of the viper is inflated, which diſtinguiſhes it from the common ſnake. The tongue forked; the teeth ſmall; the four canine teeth are placed two on each ſide the upper jaw: theſe inſtruments of poiſon are long, crooked, and moveable, and can be raiſed and depreſſed at pleaſure; they are hollow from near the point to their baſe, near which is a gland that ſecretes, prepares, and lodges the poiſon; and the ſame action that gives the wounds, forces from this gland, through the tooth, the fatal juice into it. TEETH

Theſe iſlands may be particularly thankful for the bleſſing they enjoy, in being poſſeſſed of only

* Coluber Preſter. *Lin. ſyſt.* 377. Boſe. *Faun. Suec.* No. 287.

one

one venomous animal, and that of a kind which encreaſes ſo little.

They copulate in *May*, and are ſuppoſed to be about three months before they bring forth.

They are ſaid not to arrive at their full growth in leſs than ſix or ſeven years; but that they are capable of engendering at two or three.

We have been often aſſured by intelligent people of the truth of a fact mentioned by Sir *Thomas Brown* *, who was far from a credulous writer, that the young of the viper, when terrified, will run down the throat of the parent, and ſeek ſhelter in its belly in the ſame manner as the young of the *oppoſſum* retire into the ventral pouch of the old one.

From this ſome have imagined that the viper is ſo unnatural as to devour its own young; we diſ-

Food. believe the fact, it being well known that the food of theſe ſerpents is frogs, toads, lizards, mice, and, according to Doctor *Mead*, even an animal ſo large as a mole. Theſe they ſwallow entire; which, if we conſider the narrowneſs of their neck, ſhews it is capable of a diſtenſion hardly credible, had we not ocular proofs of the fact.

It is alſo ſaid, from good authority, that they will prey on young birds; whether on ſuch as neſtle on the ground, or whether they climb up trees for them as the *Indian* ſerpents do, we are quite un-

* *Vulgar errors*, 114.

certain;

certain; but we are well assured that this discovery is far from a recent one:

Ut assidens implumibus pullis avis
Serpentium allapsus timet *.

Thus, for its young the anxious bird
The gliding serpent fears.

The viper is capable of supporting very long abstinence, it being known that some have been kept in a box six months without food, yet did not abate of their vivacity. They feed only a small part of the year, but never during their confinement; for if mice, their favorite diet, should at that time be thrown into their box, tho' they will kill, yet they never will eat them.

The poison decreases in violence in proportion to the length of their confinement: it must be also added, the virtues of its flesh (whatsoever they be) are at the same time considerably lessened.

These animals, when at liberty, remain torpid throughout the winter; yet when confined have never been observed to take their annual repose.

The method of catching them is by putting a cleft stick on or near their head; after which they are seized by the tail, and put instantly into a bag.

The viper-catchers are very frequently bit by them in the pursuit of their business, yet we very

* *Hor. Epod.* I.

rarely

rarely hear of the bite being fatal. The remedy, if applied in time, is very certain, and is nothing elſe but ſallad oil, which the viper-catchers ſeldom go without. The *axungia viperina*, or the fat of vipers, is alſo another. Doctor *Mead* ſuſpects the efficacy of this laſt, and ſubſtitutes one of his own in its place*; but we had rather truſt to vulgar receipts which perpetual trials have ſhewn to be infallible.

The ſymptoms of the venom, if the wound is neglected, are very terrible: it firſt cauſes an acute pain in the place affected, attended with a ſwelling, firſt red, afterwards livid, which by degrees ſpreads to the neighboring parts; great faintneſs, and a quick tho' low and interrupted pulſe enſue; great ſickneſs at the ſtomach, bilious convulſive vomitings, cold ſweats, and ſometimes pains about the navel; and in conſequence of theſe, death itſelf. But the violence of the ſymptoms depends much on the ſeaſon of the year, the difference of the climate, the ſize or rage of the animal, or the depth or ſituation of the wound.

Uses. Dreadful as the effects of its bite may be, yet its fleſh has been long celebrated as a noble medicine. Doctor *Mead* cites from *Pliny*, *Galen*, and other antients, ſeveral proofs of its efficacy in the cure of *ulcers*, the *elephantiaſis*, and other bad complaints. He even ſays he has ſeen good effects

* *Eſſay on Poiſons*, 47.

from

from it in an obſtinate *lepra:* it is at preſent uſed as a reſtorative, tho' we think the modern phyſicians have no great dependence on its virtues. The antients preſcribed it boiled, and to be eaten as fiſh; for when freſh, the medicine was much more likely to take effect than when dried, and given in form of a powder or troche. Mr. *Keyſler* relates that Sir *Kenelm Digby* uſed to feed his wife, who was a moſt beautiful woman, with capons fattened with the fleſh of vipers.

The antient *Britons* had a ſtrange ſuperſtition in reſpect to theſe animals, and of which there ſtill remains in *Wales* a ſtrong tradition. The account *Pliny* gives of it is as follows: we ſhall not attempt a tranſlation, it being already done to our hands in a ſpirited manner by the ingenious Mr. *Maſon*, which we ſhall take the liberty of borrowing.

Præterea eſt ovorum genus in magna Galliarum *fama, omiſſum* Græcis. *Angues innumeri æſtate convoluti, ſalivis faucium corporumque ſpumis artifici complexu glomerantur*; anguinum *appellatur.* Druidæ *ſibilis id dicunt in ſublime jactari, ſagoque oportere intercipi, ne tellurem attingat: profugere raptorem equo: ſerpentes enim inſequi, donec arceantur amnis alicujus interventu* *.

* *Lib.* XXIX. *c.* 3.

But

But tell me yet
From the grot of charms and ſpells,
Where our matron ſiſter dwells,
Brennus, has thy holy hand
Safely brought the Druid wand,
And the potent *Adder-ſtone*,
Gender'd 'fore the autumnal moon?
When in undulating twine,
The foaming ſnakes prolific join;
When they hiſs, and when they bear
Their wond'rous egg aloof in air;
Thence before to earth it fall,
The *Druid* in his hallow'd pall,
Receives the prize,
And inſtant flies,
Follow'd by the envenom'd brood,
'Till he croſs the cryſtal flood *.

This wondrous egg ſeems to be nothing more than a bead of glaſs, uſed by the *Druids* as a charm to impoſe on the vulgar, whom they taught to believe, that the poſſeſſor would be fortunate in all his attempts, and that it would gain him the favor of the great.

Our modern *Druideſſes* give much the ſame account of the *ovum anguinum*, *Glain Neidr*, as the *Welch* call it, or the *Adder-Gem*, as the *Roman* philoſopher does, but ſeem not to have ſo exalted an opinion of its powers, uſing it only to aſſiſt children in cutting their teeth, or to cure the chin-cough, or to drive away an ague.

* *Maſon*'s *Caractacus*. The perſon ſpeaking is a Druid.

We

[illegible]

We have ſome of theſe beads in our cabinet: they are made of glaſs, and of a very rich blue color; ſome are plain, others ſtreaked: we ſay nothing of the figure, as the annexed plate will convey a ſtronger idea of it than words.



Ἔνυδρις. *Ariſt. Hiſt. an.* I. c. 1.
Natrix torquata. *Geſner Serpent.* 63.
Natrix torquata. *Raii ſyn. quad.* 334.
Anguis vulgaris fuſcus collo flaveſcente, ventre albis maculis diſtinctus. *Pet. Muſ.* XVII. No. 101.
Coluber natrix. *Lin. ſyſt.* 380.
Tomt-Orm, Snok, Ring-Orm. *Faun. Suec.* No. 288.
C. natrix ſcutis abdom. 170. Squamis caudæ, 60. *Ibid.*

13. RINGED.

THE ſnake is the largeſt of the *Engliſh* ſerpents, ſometimes exceeding four feet in length: the neck is ſlender; the middle of the

body thickeſt; the back and ſides covered with ſmall ſcales, the belly with oblong, narrow, tranſverſe plates. The firſt *Linnæus* diſtinguiſhes by the name of *ſquamæ*, the laſt he calls *ſcuta*, and from them forms his genera of ſerpents.

Thoſe that have both *ſquamæ* and *ſcuta* he calls *Colubri*; thoſe that have only *ſquamæ*, *Angues*. The viper and ſnake are comprehended in the firſt genus, the blind-worm under the ſecond; but we chuſe (to avoid multiplying our genera) to take in the few ſerpents we have by a ſingle genus, their marks being too evident to be confounded.

Descrip. The color of the back and ſides of the ſnake are duſky or brown; the middle of the back marked with two rows of ſmall black ſpots running from head to tail; and from them are multitudes of lines of ſpots croſſing the ſides; the plates on the belly are duſky, the ſcales on the ſides of a bluiſh white.

On each ſide the neck is a ſpot of pale yellow, and the baſe of each is a triangular black ſpot, one angle of which points towards the tail.

The teeth are ſmall and ſerrated, lying each ſide the jaw in two rows.

This ſpecies is perfectly inoffenſive; it frequents and lodges itſelf among buſhes in moiſt places, and will readily take the water, ſwimming very well.

It preys on frogs, inſects, worms, and mice, and, conſidering the ſmallneſs of the neck, it is amazing how large an animal it will ſwallow.

The

The ſnake is oviparous: it lays its eggs in dung-hills, and in hot-beds, whoſe heat, aided by that of the ſun, promotes the excluſion of the young. EGGS.

During winter it lies torpid in banks of hedges, and under old trees.

Anguis Eryx. *Lin. ſyſt.* 392.
A new Snake. *Tour in Scotl.* 1769. App. 14. ABERDEEN.

LENGTH fifteen inches. Tongue broad and forked. Noſtrils ſmall, round, and placed near the tip of the noſe. Eyes lodged in oblong fiſſures above the angle of the mouth. Belly of a bluiſh lead color, marked with ſmall white ſpots irregularly diſpoſed. The reſt of the body of a greyiſh brown, with three longitudinal duſky lines, one extending from the head along the back to the point of the tail; the others broader, and extending the whole length of the ſides. It had no *ſcuta*; but was entirely covered with ſmall ſcales; largeſt on the upper part of the head.

Inhabits *Aberdeenſhire*. Communicated to me by the late Doctor *David Skene*.

15. BLIND-WORM.

The Blind-worm, or ſlow-worm, *Cæcilia Typhline Græcis. Raii ſyn. quad.* 289. *Grew's Muſ.* 48.

Cæcilia anglica cinerea ſquamis parvis mollibus, compactis. *Pet. Muſ.* xvii. No. 102.

Long Cripple. *Borlaſe Cornw.* 284. *tab.* 28.

Anguis fragilis. *Lin. ſyſt.* 392.

Ormſla, Koppar-Orm. *Faun. Suec.* 289.

A. fragilis ſquamis abdominis caudæque, 135. *Ibid.*

DESCRIP. THE uſual length of this ſpecies is eleven inches: the irides are red; the head ſmall; the neck ſtill more ſlender; from that part the body grows ſuddenly, and continues of an equal bulk to the tail, which ends quite blunt.

The color of the back is cinereous, marked with very ſmall lines compoſed of minute black ſpecks; the ſides are of a reddiſh caſt; the belly duſky, both marked like the back.

The tongue is broad and forky; the teeth minute, but numerous; the ſcales ſmall.

The motion of this ſerpent is ſlow, from which, and from the ſmallneſs of the eyes, are derived its names. Like others of the genus, they lie torpid during winter, and are ſometimes found in vaſt numbers twiſted together.

Like the former it is quite innocent. Doctor *Borlaſe* mentions a variety of this ſerpent with a pointed tail; and adds, that he was informed that a man loſt his life by the bite of one in *Oxfordſhire*.

We

We are inclined to think that his informant miſtook the black or duſky viper for this kind; for, excepting the viper, we never could learn that there was any ſort of poiſonous ſerpent in theſe kingdoms.

In *Sweden* is a ſmall reddiſh ſerpent, called there *Aſping*, the *Coluber Cherſea* of *Linnæus*, whoſe bite is ſaid to be mortal. Is it poſſible that this could be the ſpecies which has hitherto eſcaped the notice of our naturaliſts? I the rather ſuſpect it, as I have been informed, that there is a ſmall ſnake that lurks in the low grounds of *Galloway*, which bites and often proves fatal to the inhabitants.

CLASS IV.

FISH.

Oh Deus! ampla tuæ, quam ſunt miracula dextræ!
O quam ſolerti ſingula mente regis!
Divite tu gazâ terras, et meſſibus imples;
Nec minus eſt vaſti fertilis unda maris:
Squammiger hunc peragrat populus, proleſque parentum
Stipat, et ingentes turba minuta duces.

JONSTON. PSALMUS CIV.

F I S H.

Div. I. CETACEOUS FISH.

NO gills; an orifice on the top of the head, thro' which they breathe, and eject water; a flat or horizontal tail; exemplified in the explanatory plate, *fig.* 1. by the Beaked Whale, borrowed from *Dale's Hiſt. Harw.* 411. *Tab.* 14.

G E N E R A.

I. WHALE.
II. CACHALOT.
III. DOLPHIN.

Div. II. CARTILAGINOUS FISH.

BREATHING thro' certain apertures, generally placed on each ſide the neck, but in ſome inſtances beneath, in ſome above, and from one to ſeven in number on each part, except in the Pipe Fish, which has only one.

The muſcles ſupported by cartilages, inſtead of bones.

Explan. Pl. *fig.* 2. the Picked Dog Fish.

a. The lateral apertures.

IV. LAMPREY.
V. SKATE.
VI. SHARK.
VII. FISHING FROG.
VIII. STURGEON.
IX. SUN FISH.
X. LUMP FISH.
XI. PIPE FISH.

Div. III. BONY FISH.

THIS diviſion includes thoſe whoſe muſcles are ſupported by bones or ſpines, which breathe thro' gills covered or guarded by thin bony plates, open on the ſide, and dilatable by means of a certain row of bones on their lower part each ſeparated by a thin web, which bones are called the *Radii Branchioſtegi*, or the *Gillcovering Rays*.

The tails of all the fiſh that form this diviſion, are placed in a ſituation perpendicular to the body, and this is an invariable character.

The later Icthyologiſts have attempted to make the number of the branchioſtegous rays a character of the *genera*; but I found (yet too late in ſome inſtances, where I yielded an implicit faith) that their rule was very fallible, and had induced me into error; but as I borrowed other definitions, it is to be hoped the explanation of the *genera* will be intelligible. I ſhould be very diſingenu-

ous,

ous, if I did not own my obligations in this reſpect to the works of ARTEDI, Dr. GRONOVIUS, and LINNÆUS.

It is from the laſt I have copied the great ſections of the BONY FISH into

APODAL, JUGULAR,
THORACIC, ABDOMINAL*.

He founds this ſyſtem on a compariſon of the ventral fins to the feet of land animals or reptiles; and either from the want of them, or their particular ſituation in reſpect to the other fins, eſtabliſhes his ſections.

In order to render them perfectly intelligible, it is neceſſary to refer to thoſe ſeveral organs of movement, and ſome other parts, in a perfect fiſh, or one taken out of the three laſt ſections.

The HADOCK. Expl. Pl. *fig.* 4.

a. The pectoral fins.
b. ventral fins.
c. anal fins.
d. caudal fin, or the tail.
e. e. e. dorſal fins.
f. bony plates that cover the gills.
g. branchioſtegous rays, and their membranes.
h. lateral, or ſide line.

* *Vide Syſt. Nat.* 422.

SECT.

SECT. I. APODAL.

THE moſt imperfect, wanting the ventral fins; illuſtrated by the CONGER, *fig.* 3. This alſo expreſſes the union of the dorſal and anal fins with the tail, as is found in ſome few fiſh.

XII. EEL.
XIII. WOLF FISH.
XIV. LAUNCE.
XV. MORRIS.
XVI. SWORD FISH.

SECT. II. JUGULAR.

THE ventral fins *b*, placed before the pectoral fins *a*, as in the HADOCK, *fig.* 4.

XVII. DRAGONET.
XVIII. WEEVER.
XIX. CODFISH.
XX. BLENNY.

SECT.

SECT. III. THORACIC.

THE ventral fins *a*, placed beneath the pectoral fins *b*, as in the FATHER LASHER, *fig.* 5.

XXI. GOBY.
XXII. BULL-HEAD.
XXIII. DOREE.
XXIV. FLOUNDER.
XXV. GILT-HEAD.
XXVI. WRASSE.
XXVII. PERCH.
XXVIII. STICKLEBACK.
XXIX. MACKREL.
XXX. SURMULLET.
XXXI. GURNARD.

SECT. IV. ABDOMINAL.

THE ventral fins placed behind the pectoral fins, as in the MINOW, *fig.* 6.

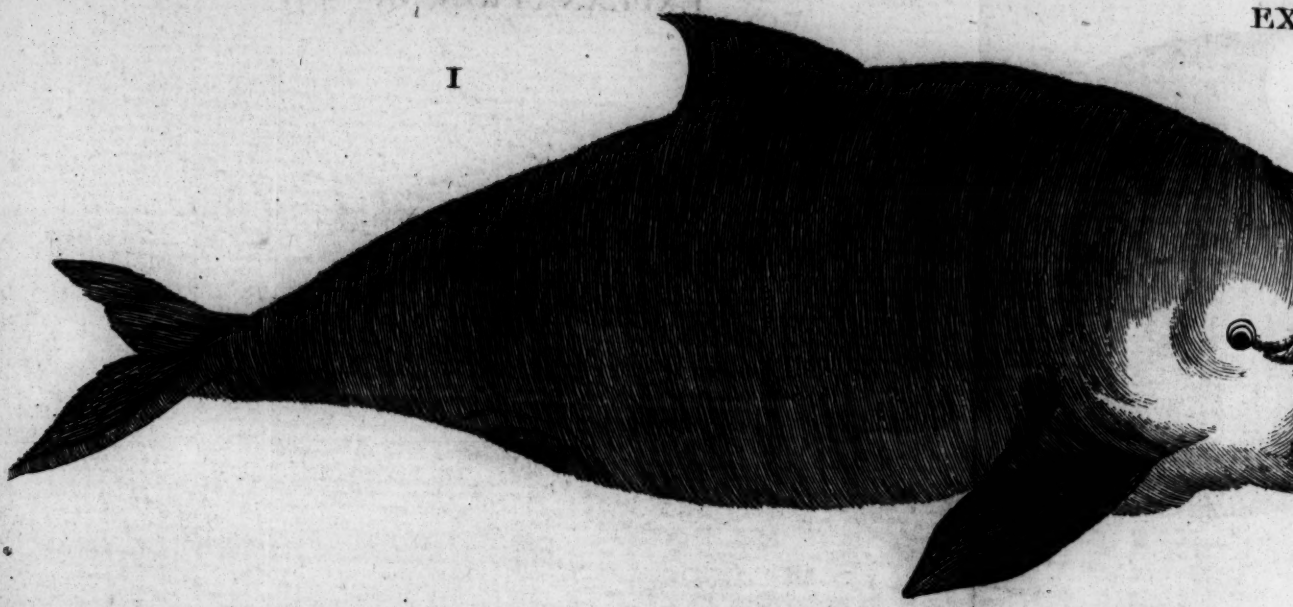
XXXII. LOCHE.
XXXIII. SALMON.
XXXIV. PIKE.
XXXV. ARGENTINE.
XXXVI. ATHERINE.
XXXVII. MULLET.
XXXVIII. FLYING FISH.
XXXIX. HERRING.
XL. CARP.

p. 42 Q^to

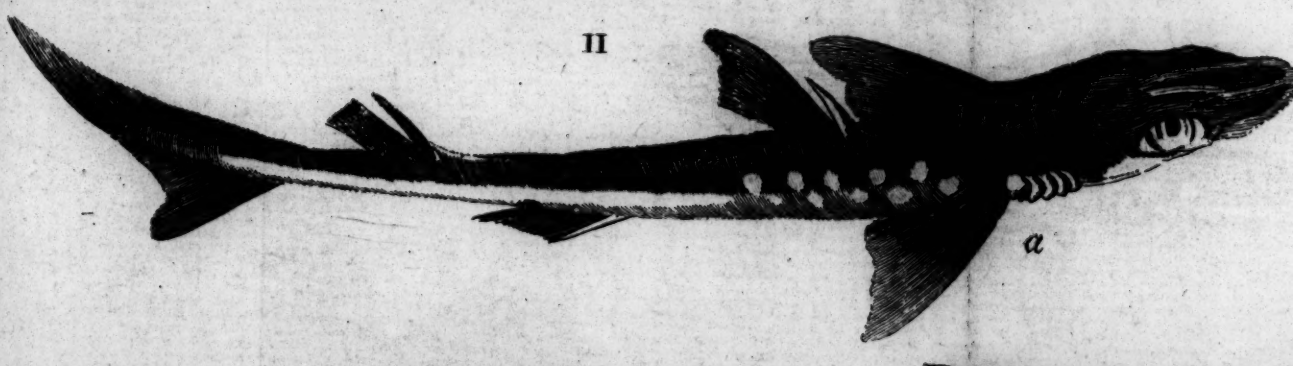
TAB. V.

EX

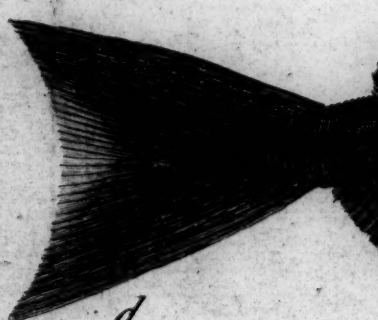
I



II



a



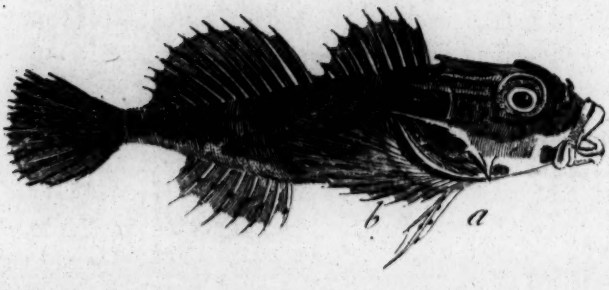
d

III

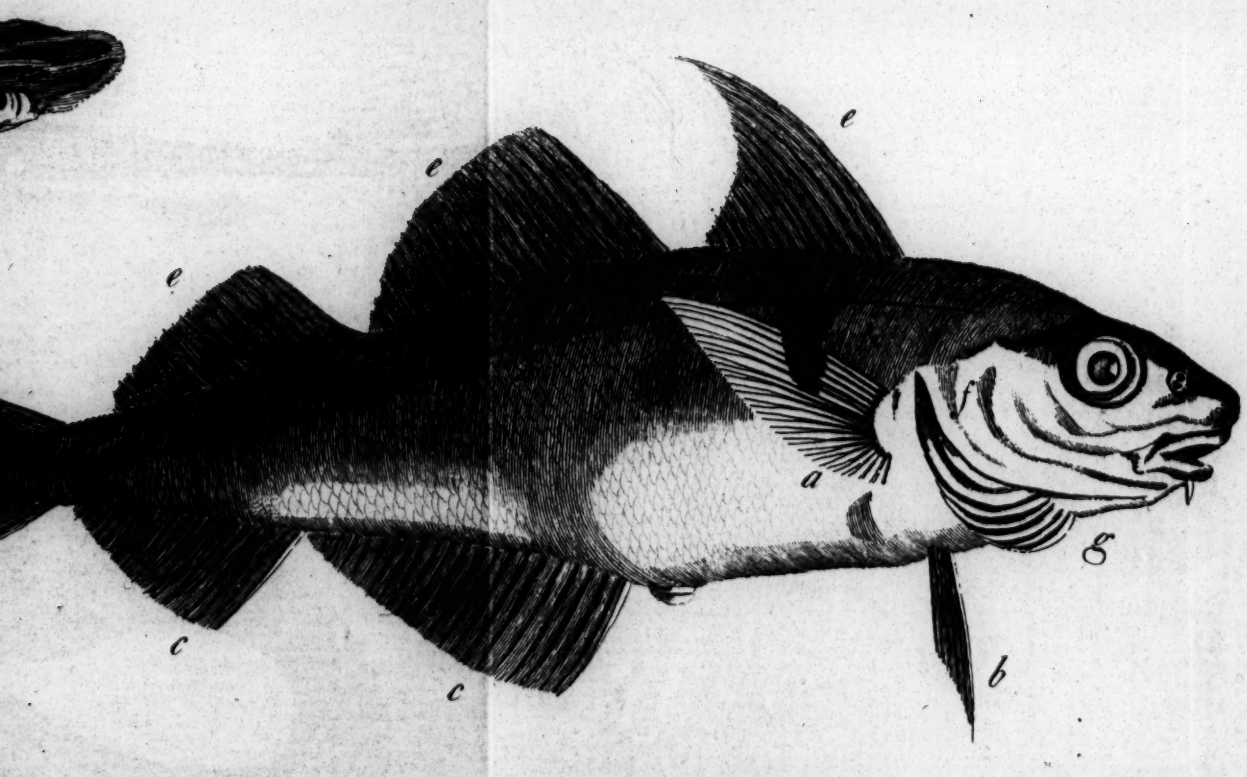




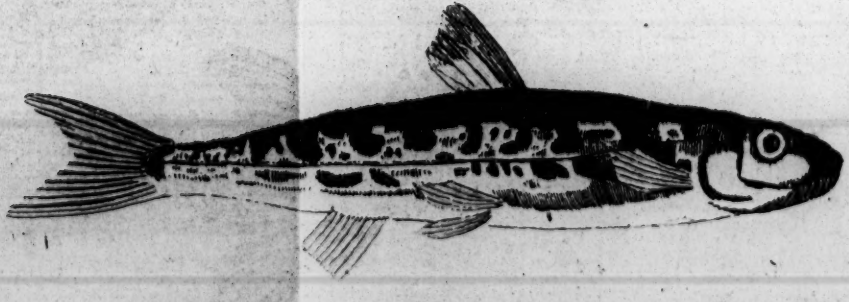
V



IV



VI.



DIV. I. CETACEOUS FISH.

NATURE on this tribe hath beſtowed an internal ſtructure in all reſpects agreeing with that of quadrupeds; and in a few other the external parts in both are ſimilar.

Cetaceous Fiſh, like land animals, breathe by means of lungs, being deſtitute of gills. This obliges them to riſe frequently to the ſurface of the water to reſpire, to ſleep on the ſurface, as well as to perform ſeveral other functions.

They have the power of uttering ſounds, ſuch as bellowing and making other noiſes, a faculty denied to genuine fiſh *.

Like land animals they have warm blood, are furniſhed with organs of generation, copulate, bring forth, and ſuckle their young, ſhewing a ſtrong attachment to them.

Their bodies beneath the ſkin are entirely ſurrounded with a thick layer of fat (blubber) analogous to the lard on hogs.

The number of their fins never exceeds three,

* *Pontop. Hiſt. Norw.* II. 123. *Blaſius Anat. Animal,* 288.

viz.

viz. two pectoral fins, and one back fin; but in ſome ſpecies the laſt is wanting.

Their tails are placed horizontally or flat in reſpect to their bodies; contrary to the direction of thoſe of all other fiſh, which have them in a perpendicular ſite. This ſituation of the tail enables them to force themſelves ſuddenly to the ſurface of the water to breathe, which they are ſo frequently conſtrained to do.

Many of theſe circumſtances induced *Linnæus* to place this tribe among his *Mammalia*, or what other writers ſtyle quadrupeds.

To have preſerved the chain of beings entire, he ſhould in this caſe have made the genus of *Phocæ*, or *Seals*, and that of the *Trichecus* or *Manati*, immediately precede the whale, thoſe being the links that connect the *Mammalia* or quadrupeds with the fiſh; for the *Seal* is, in reſpect to its legs, the moſt imperfect of the former claſs; and in the *Manati* the hind feet coaleſce, aſſuming the form of a broad horizontal tail.

Notwithſtanding the many parts and properties which cetaceous fiſh have in common with land animals, yet there ſtill remain others, that in a natural arrangement of the animal kingdom, muſt determine us after the example of the illuſtrious *Ray* *, to place them in the rank of fiſh; and for

* Who makes two diviſions of fiſh.

1. *Pulmone reſpirantes.*
2. *Branchiis reſpirantes.*

the

the ſame reaſons, that firſt of ſyſtematic writers aſſigns,

That the form of their bodies agrees with that of fiſh.

They are entirely naked, or covered only with a ſmooth ſkin.

They live entirely in the water, and have all the actions of fiſh.

I. WHALE. Cetaceous Fiſh without teeth, with horny laminæ in their mouths.

16. COMMON.

Μυσίκητος. *Ariſt. hiſt. an. Lib.* III. *c.* 12.

Muſculus *Plinii, Lib.* XI. *c.* 37.

Balæna. *Rondel.* 475. *Geſner Piſc.* 114.

Balæna major, laminas corneas in ſuperiore maxillas habens, fiſtula donata, bipinnis. *Sib. Phalæn.* 28.

Balæna vulgaris edentula, dorſo non pinnato. *Raii ſyn. piſc.* 6.

Balæna. *Rondel. Wil. Icth.* 35.

The Whale. *Marten's Spitzberg.* 130. *Crantz's Greenl.* I. 107.

La Baleine ordinaire. *Briſſon Cet.* 218.

Balæna fiſtula in medio capite, dorſo caudum verſus, acuminato. *Arted. ſyn.* 106. *Sp.* 106.

Balæna myſticetus. *Lin. ſyſt.* 105. Gronlands Walfiſk. *Faun. Suec.* No. 49.

Balæna. *Gronov. Zooph.* 29.

SIZE. THIS ſpecies is the largeſt of all animals: it is even at preſent ſometimes found in the northern ſeas ninety feet in length; but formerly they were taken of a much greater ſize, when the captures were leſs frequent, and the fiſh had time to grow. Such is their bulk within the *arctic* circle, but in thoſe of the *torrid* zone, where they are unmoleſted, whales are ſtill ſeen one hundred and ſixty feet long*.

The

* *Adanſon's voy.* 174. From this account we find no reaſon to diſbelieve the vaſt ſize of the *Indian* whales, of whoſe bones

The head is very much diſproportioned to the ſize of the body, being one-third the ſize of the fiſh: the under lip is much broader than the upper. The tongue is compoſed of a ſoft ſpongy fat, capable of yielding five or ſix barrels of oil. The gullet is very ſmall for ſo vaſt a fiſh, not exceeding four inches in width. In the middle of the head are two orifices, thro' which it ſpouts water to a vaſt height, and with a great noiſe, eſpecially when diſturbed or wounded.

The eyes are no larger than thoſe of an ox.

On the back there is no fin, but on the ſides, beneath each eye, are two large ones.

The penis is eight feet in length, incloſed in a ſtrong ſheath. The teats in the female are placed in the lower part of the belly.

The tail is broad and ſemilunar.

This whale varies in color: the back of ſome being red, the belly generally white. Others are black, ſome mottled, others quite white, according to the obſervation of *Marten*, who ſays, that their colors in the water are extremely beautiful, and that their ſkin is very ſmooth and ſlippery.

WHALE-BONE.

What is called *whalebone* adheres to the upper jaw, and is formed of thin parallel laminæ, ſome

bones and jaws, both *Strabo*, *Lib.* XV. and *Pliny*, *Lib.* IX. *c.* 3. relate, that the natives made their houſes, uſing the jaws for door-caſes. This method of building was formerly practiſed by the inhabitants of *Greenland*, as we find from *Frobiſher*, in his ſecond voyage, p. 18, publiſhed in 1587.

of the longeſt four yards in length; of theſe there are commonly 350 on each ſide, but in very old fiſh more; of theſe about 500 are of a length fit for uſe, the others being too ſhort. They are ſurrounded with long ſtrong hair, not only that they may not hurt the tongue, but as ſtrainers to prevent the return of their food when they diſcharge the water out of their mouths.

It is from theſe hairs that *Ariſtotle* gave the name of Μυσίκητος, or the *bearded whale*, to this ſpecies, which he tells us had in its mouth hairs inſtead of teeth *; and *Pliny* deſcribes the ſame under the name of *Muſculus* †. Though the antients were acquainted with this animal, yet as far as we recollect, they were ignorant of their uſes as well as capture.

Aldrovand ‡ indeed deſcribes from *Oppian*, what he miſtakes for whale fiſhing: he was deceived by the word κητος, which is uſed not only to expreſs whale in general, but any great fiſh. The *poet* here meant the *ſhark*, and ſhews the way of taking it in the very manner practiſed at preſent, by a ſtrong hook baited with fleſh. He deſcribes too its three-fold row of teeth, a circumſtance that at once diſproves its being a whale:

* ἔτι δὲ καὶ ὁ μυσίκητος ὀδόντος μεν εν τω στόματι οὐκ ἐχει, τρίχας δε ὁμοίας ὑείας. *Hiſt. an. Lib.* III. *c.* 12.

† *Lib.* XI. *c.* 37.

‡ *De Cetis.* 261.

Δεινὰς

Δεινὸς χαυλιόδοντας ἀναιδέας ἠΰτ' ἀκοντας,
Τρισοιχεὶ πεφυῶτας ἐπασσυτέρησιν ἀκωκαῖς.

Halieut. V. *lin.* 526.

Whoſe dreadful teeth in triple order ſtand,
Like ſpears out of his mouth.

The whale, though ſo bulky an animal, ſwims with vaſt ſwiftneſs, and generally againſt the wind.

It brings only two young at a time, as we believe is the caſe with all other whales.

Its food is a certain ſort of ſmall ſnail, and as *Linnæus* ſays, the *meduſa*, or ſea blubber. FOOD.

The great reſort of this ſpecies is within the *arctic* circle, but they ſometimes viſit our coaſts. Whether this was the *Britiſh* whale of the antients we cannot pretend to ſay, only we find, from a line in *Juvenal*, that it was of a very large ſize;

Quanto Delphinis Balæna Britannica *major.*

Sat. X.

As much as *Britiſh* whales in ſize ſurpaſs
The dolphin race.

To view theſe animals in a commercial light, we muſt add, that the *Engliſh* were late before they engaged in the whale-fiſhery: it appears by a ſet of queries, propoſed by an honeſt merchant in the year 1575, in order to get information in the buſineſs, that we were at that time totally igno-

rant of it, being obliged to ſend to *Biſkaie for men ſkilful in the catching of the whale, and ordering of the oil, and one cooper ſkilful to ſet up the ſtaved caſk* *. This ſeems very ſtrange; for by the account *Oether* gave of his travels to King *Alfred*, near 700 years † before that period, it is evident that he made that monarch acquainted with the *Norwegians* practiſing the whale-fiſhery; but it ſeems all memory of that gainful employ, as well as of that able voyager *Oether*, and all his important diſcoveries in the North were loſt for near ſeven centuries.

It was carried on by the *Biſcayeners* long before we attempted the trade, and that for the ſake not only of the oil, but alſo of the whalebone, which they ſeem to have long trafficked in. The earlieſt notice we find of that article in our trade is by *Hackluyt* ‡, who ſays it was brought from the *Bay of St. Laurence* by an *Engliſh* ſhip that went there for the *barbes* and *fynnes* of whales and train oil, A. D. 1594, and who found there ſeven or eight hundred *whale fynnes*, part of the cargo of two great *Biſkaine* ſhips, that had been wrecked there three years before. Previous to that, the ladies ſtays muſt have been made of ſplit cane, or ſome tough wood, as Mr. *Anderſon* obſerves in his

* *Hackluyt's Col. voy.* I. 414.
† *Idem*, I. 4.
‡ *Idem*, III. 194.

Dictionary

Dictionary of Commerce*, it being certain that the whale fiſhery was carried on, for the ſake of the oil, long before the diſcovery of the uſe of whale bone.

The great reſort of theſe animals was found to be on the inhoſpitable ſhores of *Spitzbergen*, and the *European* ſhips made that place their principal fiſhery, and for numbers of years were very ſucceſsful: the *Engliſh* commenced that buſineſs about the year 1598, and the town of *Hull* had the honor of firſt attempting that profitable branch of trade. At preſent it ſeems to be on the decline, the quantity of fiſh being greatly reduced by the conſtant capture for ſuch a vaſt length of time: ſome recent accounts inform us, that the fiſhers, from a defect of whales, apply themſelves to ſeal fiſhery, from which animals they extract an oil. This we fear will not be of any long continuance; for theſe ſhy and timid creatures will ſoon be induced to quit thoſe ſhores by being perpetually harraſſed, as the *morſe* or *walrus* has already in a great meaſure done. We are alſo told, that the poor natives of *Greenland* begin even now to ſuffer from the decreaſe of the ſeal in their ſeas, it being their principal ſubſiſtence; ſo that ſhould it totally dedeſert the coaſt, the whole nation would be in danger of periſhing through want.

In old times the whale ſeems never to have been ROYAL FISH.

* *Vol.* I. 442.

taken on our coaſts, but when it was accidentally flung aſhore: it was then deemed a royal fiſh *, and the king and queen divided the ſpoil; the king aſſerting his right to the head, her majeſty to the tail †.

17. PIKE-HEADED.

Balæna tripinnis nares habens cum roſtro acuto, et plicis in ventre. *Sib. Phalain* 29. *tab.* 1.
Idem. *Raii ſyn. piſc.* 16.
Pike-headed Whale. *Dale Harwich*, 410. No. 3.
La Baleine a muſeau pointu. *Briſſon Cet.* 224.
Balæna fiſtula duplici in roſtro, dorſo extremo protuberantia cornuiformi. *Arted. ſyn.* 107.
Balæna Boops. *Lin. ſyſt.* 106.

SIZE. THE length of that taken on the coaſt of *Scotland*, as remarked by Sir *Robert Sibbald*, was forty-ſix feet, and its greateſt circumference twenty.

DESCRIP. The head of an oblong form, ſloping down, and growing narrower to the noſe; ſix feet eight inches from the end of which were two ſpout-holes, ſeparated by a thin diviſion: the eyes ſmall.

The pectoral fins five feet long, and one and a half broad: on the back, about eight feet and an half from the tail, in lieu of a back fin, was a hard horny protuberance: the tail was nine feet and a half broad.

* Item habet warectum maris per totum regnum *Ballenas* et *Sturgiones* captos, &c. *Edwardi* II. *anno* 17*mo*.

† *Blackſtone's Com.* I. *c.* 4.

The

The belly was uneven, and formed into folds running length-ways.

The ſkin extremely ſmooth and bright; that on the back black; that on the belly white.

This ſpecies takes its name from the ſhape of its noſe, which is narrower and ſharper pointed than that of other whales.

Balæna edentula corpore ſtrictiore, dorſo pinnato. *Raii ſyn. piſc.* 9. *Dale Harwich*, 410. No. 2.
Fin Fiſh. *Marten's Spitzberg.* 165.
Egede Greenl. 65. *Crantz Greenl.* I. 110.
Le Gibbar. *Briſſon Cet.* 222.
Balæna fiſtula in medio capite tubero penniformi in extremo dorſo. *Arted. ſyn.* 107.
Balæna Phyſalus. *Lin. ſyſt.* 106.

18. FIN FISH.

THIS ſpecies is diſtinguiſhed from the common whale by a fin on the back, placed very low and near the tail.

DESCRIP.

The length is equal to that of the common kind, but much more ſlender. It is furniſhed with whale-bone in the upper jaw, mixed with hairs, but ſhort and knotty, and of little value. The blubber alſo on the body of this kind is very inconſiderable; theſe circumſtances, added to its extreme fierceneſs and agility, which renders the capture very dangerous, cauſe the fiſhers to neglect it. The natives of *Greenland* though hold it in great eſteem, as it affords a quantity of fleſh, which to their palate is very agreeable.

The

The lips are brown, and like a twiſted rope: the ſpout hole is as it were ſplit in the top of its head, through which it blows water with much more violence, and to a greater height, than the common whale. The fiſhers are not very fond of ſeeing it, for on its appearance the others retire out of thoſe ſeas.

Some writers conjecture this ſpecies to have been the Φυσαλος, and *Phyſeter*, or blowing whale of *Oppian*, *Ælian*, and *Pliny* *; but ſince thoſe writers have not left the leſt deſcription of it, it is impoſſible to judge which kind they meant; for in reſpect to the faculty of ſpouting out water, or blowing, it is not peculiar to any one ſpecies, but common to all the whale kind.

19. ROUND-LIPPED.

Balæna tripinnis maxillam inferiorem rotundam et ſuperiore multo latiorem habens. *Sib. Phalain.* 33. *tab.* T. 3.
Idem. *Raii ſyn. piſc.* 16.
La Baleine a muſeau rond. *Briſſon Cet.* 222.
B. fiſtula duplici in fronte maxilla inferiore multo latiore. *Arted. ſyn.* 107.
Balæna muſculus. *Lin. ſyſt.* 106.

THE character of this ſpecies is to have the lower lip broader than the upper, and of a ſemicircular form.

That taken in 1692 near *Abercorn-Caſtle*, was ſeventy-eight feet long, the circumference thirty-

* *Oppian*, *Halieut*, I. *Lin.* 368. *Ælian Hiſt. an.* ix. *c.* 49. *Plin. lib.* ix. *c.* 5.

five;

five; the *rictus* or gape very wide; the tongue fifteen feet and a half long; the mouth furniſhed with ſhort whale-bone, about three feet in length. On the forehead were two ſpout holes of a pyramidal form.

The eyes were placed thirteen feet from the end of the noſe: the pectoral fins ten feet long: the back fin about three feet high, placed near the tail, which was eighteen feet broad: the belly was full of folds.

This ſpecies is ſaid to feed on herrings.

20. BEAKED.

Butſkopf. *Marten's Spitzberg.* 124.

Bottle-head, or Flounders-head. *Dale Harwich*, 411.

tab. 14.

Nebbe-haul, or beaked Whale. *Pontop. Norway*, I. 123.

THIS ſpecies was taken near *Maldon*, 1717, and thus deſcribed by *Dale* and *Marten*.

The length was fourteen feet, the circumference ſeven and an half; the body very thick, the forehead high, the noſe depreſſed, and of the ſame thickneſs its whole length, not unlike the beak of a bird: in the mouth were no teeth.

The eyes large, the eyelids ſmall, and placed a little above the line of the mouth. The ſpout hole was on the top of the head ſemicircular, with the corners pointed towards the tail.

The pectoral fins were ſeventeen inches long.

The

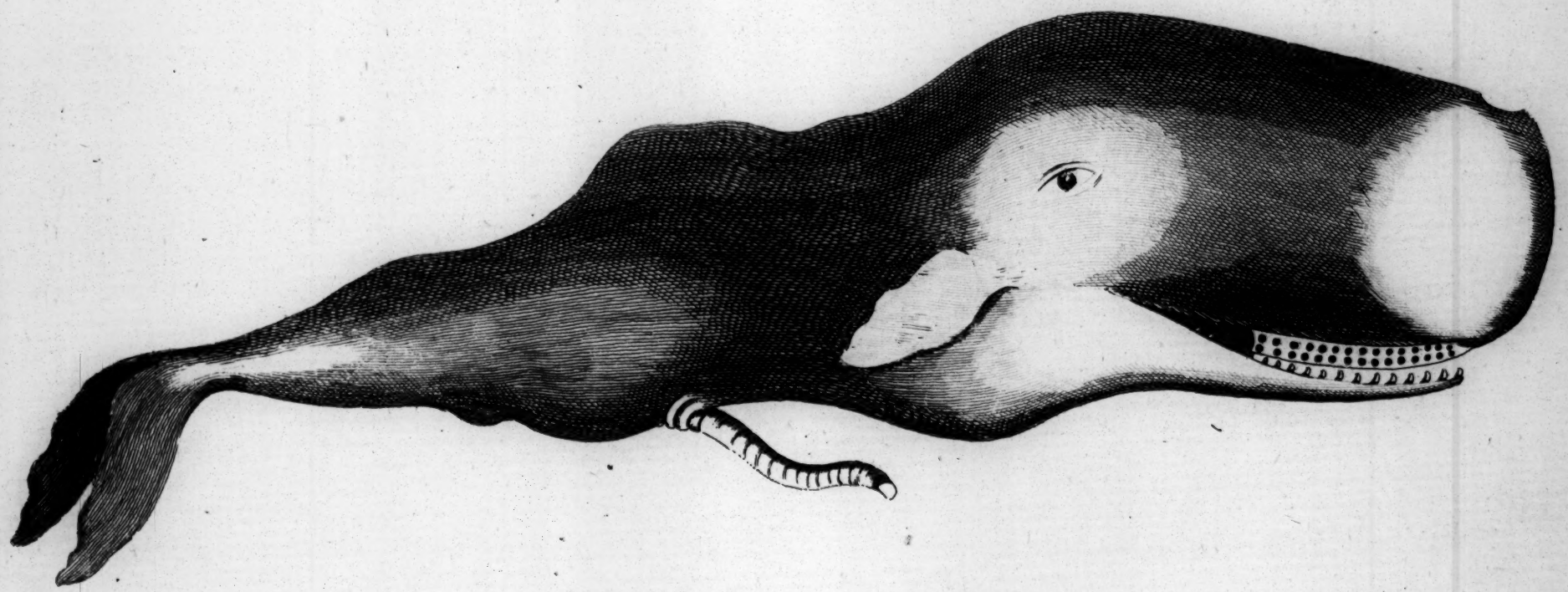
The back fin was placed rather nearer the tail than the head, and was a foot long: the breadth of the tail was three feet two inches.

Theſe fiſh ſometimes grow to the length of twenty feet; they make but little noiſe in blowing, are very tame, come very near the ſhips, and will accompany them for a great way.

Belon deſcribes and figures a fiſh very much reſembling, if not the ſame with this: he ſays it furniſhed whale-bone, *Dont les Dames font aujourdhuy leurs buſtes et arrondiſſent leurs verdugades**, by which it appears, that the commodity was but newly known at that time in *France*. He adds, that the tongue was very good eating, and both that and the fleſh uſed to be ſalted for proviſion.

* *Belon de la nat. &c. des Poiſſons*, 1555, p. 6, by which it appears that the *French* were acquainted with that article at leſt forty years before we were.

BLUNT HEADED CACHALOT.



Cetaceous Fiſh, with teeth in the lower jaws only. II. CACHALOT.

Trumpa. *Purchaſs's Pilgrimes* III. 471.
Balæna major in inferiore tantum maxilla dentata dentibus arcuatis falciformibus, pinnam ſive ſpinam in dorſo habens. *Sib. Phalian.* 13. *tab.* A. 1. *Raii ſyn. piſc.* 15.
Le cachalot a dents en faucilles. *Briſſon Cet.* 229.
The Parmacitty Whale, or Pot Wal Fiſh. *Dale Harwich*, 413.
Phyſeter microps. *Lin. ſyſt.* 107. *Arted. ſyn.* 104.
Caſhalot, Catodon, or Pot Fiſh. *Crantz Greenl.* I. 112.

21. BLUNT-HEADED.

A FISH of this kind was caſt aſhore on *Cramond Iſle*, near *Edinburgh*, *December* 22d, 1769; its length was fifty-four feet, the greateſt circumference, which was juſt beyond the eyes, thirty: the upper jaw was five feet longer than the lower, whoſe length was ten feet. SIZE.

The head was of a moſt enormous ſize, very thick, and above one-third the ſize of the fiſh: the end of the upper jaw was quite blunt, and near nine feet high: the ſpout hole was placed near the end of it. DESCRIP.

The teeth were placed in the lower jaw, twenty-three on each ſide, all pointing outwards; in the upper jaw, oppoſite to them, were an equal number of cavities, in which the ends of the teeth lodged when the mouth was cloſed. The tooth, figured TEETH.

BLUNT HEADED CACHALOT.

figured in *plate* iii. *No.* 2. was eight inches long, the greateſt circumference the ſame. It is hollow within ſide for the depth of three inches, and the mouth of the cavity very wide: it is thickeſt at the bottom, and grows very ſmall at the point, bending very much; but in ſome the flexure is more than in others. Theſe, as well as the teeth of all other whales we have obſerved, are very hard, and cut like ivory.

The eyes very ſmall, and remote from the noſe.

The pectoral fins placed near the corners of the mouth, and were only three feet long: it had no other fin, only a large protuberance on the middle of the back.

The tail a little forked, and fourteen feet from tip to tip.

The penis ſeven feet and a half long.

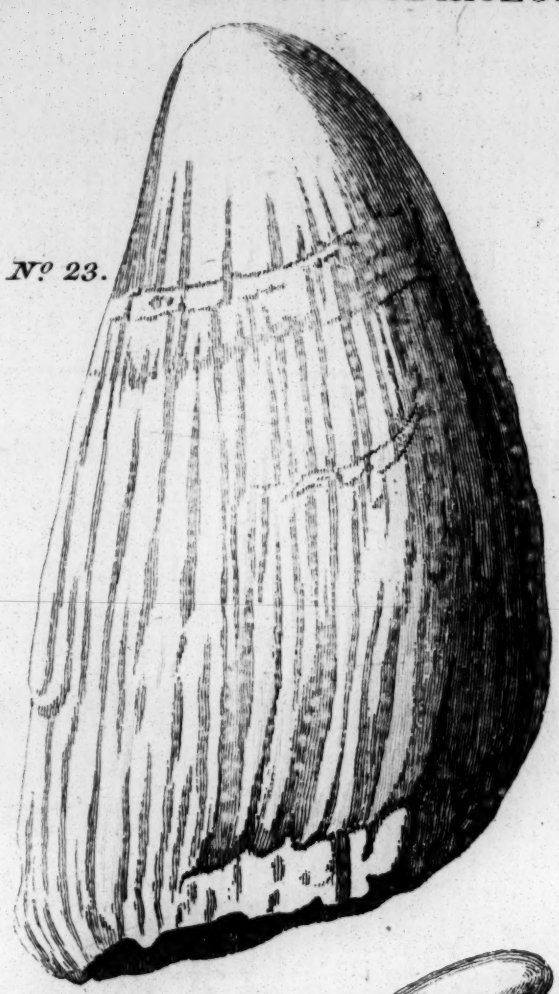
The figure, *plate* ii. we borrowed from a print in the LX. vol. of the *Ph. Tr. p.* where there is a very good account of this ſpecies by Mr. *James Robertſon*, ſurgeon.

This is one of the ſpecies which yield what is Spermaceti improperly called *ſperma ceti*; that ſubſtance being found lodged in the head of the fiſh that form this genus, which the *French* call *Cachalot*, a name we have adopted, having no general term for it in our tongue.

Linnæus informs us, that this ſpecies purſues and terrifies the Porpeſſes to ſuch a degree as often to drive them on ſhore.

Belæna

TEETH OF CETACEOUS FISH.



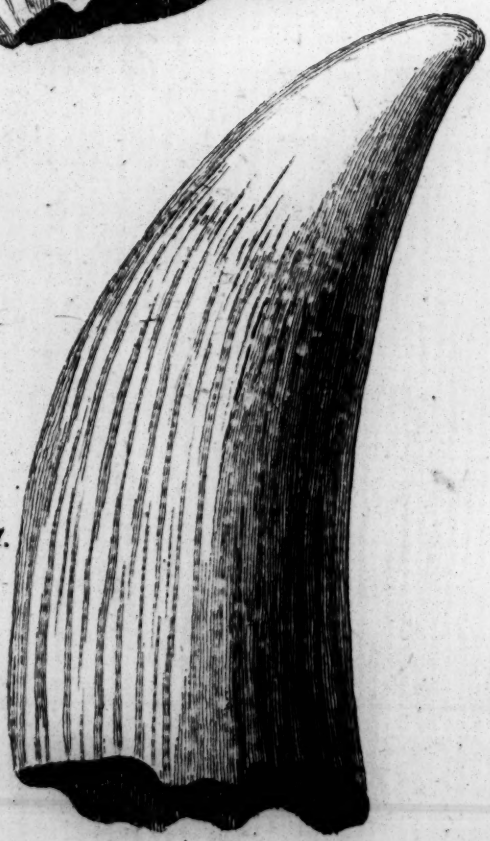
No. 23.



No. 21



No. 24.



No. 21.



No. 22.

P. Mazell del. et Sc.

Balæna minor in inferiore maxilla tantum dentata ſine ſpina aut pinna in dorſo. *Sib. Phalain.* 9. *Raii ſyn. piſc.* 15.
Le petit Cachalot. *Briſſon Cet.* 228.
Phyſeter Catodon. *Lin. ſyſt.* 107.
Catodon fiſtula in roſtro. *Arted. ſynon.* 108.

22. ROUND-HEADED.

THIS ſpecies was taken on one of the *Orkney* Iſles, a hundred and two of different ſizes being caſt aſhore at one time, the largeſt twenty-four feet in length.

The head was round, the opening of the mouth ſmall: *Sibbald* ſays it had no ſpout hole, but only noſtrils. We rather think, that the former being placed at the extremity of the noſe was miſtaken by him for the latter.

The teeth we have in our cabinet of this ſpecies (*plate* iii. *No.* 4.) are an inch and three-quarters long, and in the largeſt part, of the thickneſs of one's thumb. The top is quite flat, and marked with concentric lines; the bottom is more ſlender than the top, and pierced with a ſmall orifice.

The back fin was wanting; inſtead was a rough ſpace.

23. HIGH-FINNED.

Balæna macrocephala tripinnis, quæ in mandibula inferiore dentes habet minus inflexos et in planum desinentes. *Sib. Phalain.* 18. *Raii ſyn. piſc.* 16.
Le Cachalot a dents plattes. *Briſſon Cet.* 230.

ONE of this ſpecies was caſt on the *Orkney* Iſles in 1687. The ſpout hole was placed in front, and on the middle of the back was a high fin, which *Sibbald* compares to the mizen maſt of a ſhip. The head abounded with *ſperma ceti* of the beſt ſort.

TEETH. The teeth of this kind are very ſlightly bent; that which we have figured, *plate* iii. *No.* 1. is ſeven inches three-quarters in length; the greateſt circumference nine: it is much compreſſed on the ſides; the point rather blunt than flat; the bottom thin, having a very narrow but long orifice, or ſlit, hollowed to the depth of five inches and a quarter, and the tooth was immerſed in the jaw as far as that hollow.

Cetaceous Fiſh, with teeth in both jaws. III. DOLPHIN.

Δελφίς. *Ariſt. Hiſt. an. lib.* vi. *c.* 12. Δελφίν. *Ælian lib.* I. *c.* 18.
Delphinus *Plinii, lib.* ix. *c.* 8. Le Daulphin, ou oye de mer. *Belon Poiſſ.* 7.
Delphinus. *Rondel.* 459. *Geſner piſc.* 319. *Caii opuſc.* 113.
Delphinus Antiquorum. *Wil. Icth.* 28. *Raii ſyn. piſc.* 12.
Delphinus corpore longo ſubtereti, roſtro longo acuto. *Arted. ſyn.* 105.
Le Dauphin. *Briſſon Cet.* 233.
Delphinus Delphis. *Lin. ſyſt.* 108.
Dolphin. *Borlaſe Cornwall,* 264. *tab.* 27. *Crantz Greenl.* I. 115.

24. DOLPHIN.

HISTORIANS and philoſophers ſeem to have contended who ſhould invent moſt fables concerning this fiſh. It was conſecrated to the Gods, was celebrated in the earlieſt time for its fondneſs of the human race, was honored with the title of the *Sacred Fiſh* *, and diſtinguiſhed by thoſe of *Boy-loving*, and *Philanthropiſt*. It gave riſe to a long train of inventions, proofs of the credulity and ignorance of the times.

Ariſtotle ſteers the cleareſt of all the antients from theſe fables, and gives in general ſo faithful a natural hiſtory of this animal, as evinces the ſuperior judgment of that great philoſopher, in compariſon to thoſe who ſucceeded him. But the elder

* *Athenæus*, 281.

Pliny, *Ælian*, and others, ſeem to preſerve no bounds in their belief of the tales related of this fiſh's attachment to mankind.

*Pliny** the younger, (apologizing for what he is going to ſay) tells the ſtory of the enamoured dolphin of *Hippo* in a moſt beautiful manner. It is too long to be tranſcribed, and would be injured by an abridgement; therefore we refer the reader to the original, or to Mr. *Melmoth*'s elegant tranſlation.

Scarce an accident could happen at ſea but the dolphin offered himſelf to convey to ſhore the unfortunate. *Arion*, the muſician, when flung into the ocean by the pyrates, is received and ſaved by this benevolent fiſh.

Inde (fide majus) tergo Delphina recurvo,
Se memorant oneri ſuppoſuiſſe novo.
Ille ſedens citharamque tenens, pretiumque vehendi
Cantat, et æquoreas carmine mulcet aquas.

Ovid. Faſti, lib. ii. 113.

But (paſt belief) a Dolphin's arched back,
Preſerved *Arion* from his deſtined wrack;
Secure he ſits, and with harmonious ſtrains,
Requites his bearer for his friendly pains.

We are at a loſs to account for the origin of thoſe fables, ſince it does not appear that the dolphin ſhews a greater attachment to mankind than

* *Epiſt. lib.* ix. *ep.* 33.

the

the reſt of the cetaceous tribe. We know that at preſent the appearance of this fiſh, and the porpeſſe, are far from being eſteemed favorable omens by the ſeamen; for their boundings, ſprings and frolics in the water, are held to be ſure ſigns of an approaching gale.

It is from their leaps out of that element that they aſſume a temporary form that is not natural to them, but which the old painters and ſculptors have almoſt always given them. A dolphin is ſcarce ever exhibited by the antients in a ſtrait ſhape, but almoſt always incurvated: ſuch are thoſe on the coin of *Alexander the Great*, which is preſerved by *Belon*, as well as on ſeveral other pieces of antiquity. The poets deſcribe them much in the ſame manner, and it is not improbable but that the one had borrowed from the other:

Tumidumque pando tranſilit dorſo mare
Tyrrhenus omni piſcis exſultat freto,
Agitatque gyros.

Senec. Trag. Agam. 450.

Upon the ſwelling waves the dolphins ſhew
Their bending backs, then ſwiftly darting go,
And in a thouſand wreaths their bodies throw.

DESCRIP. The natural ſhape of the dolphin is almoſt ſtrait, the back being very ſlightly incurvated, and the body ſlender: the noſe is long, narrow, and point-

ed, not much unlike the beak of ſome birds, for which reaſon the *French* call it *L' oye de mer*.

Teeth. It has in all forty-two teeth, twenty-one in the upper jaw, and nineteen in the lower, a little above an inch long, conic at their upper end, ſharp pointed*, bending a little in. They are placed at ſmall diſtances from each other, ſo that when the mouth is ſhut, the teeth of both jaws lock into one another: a ſingle one is figured *plate* iii. *No.* 5.

The ſpout hole is placed in the middle of the head.

The back fin is high, triangular, and placed rather nearer to the tail than to the head; the pectoral fins ſituated low.

The tail is ſemilunar.

The ſkin is ſmooth, the color of the back and ſides duſky; the belly whitiſh.

It ſwims with great ſwiftneſs: its prey is fiſh.

It was formerly reckoned a great delicacy: Doctor *Caius* ſays, that one which was taken in his time, was thought a preſent worthy the Duke of *Norfolk*, who diſtributed part of it among his friends. It was roaſted and dreſſed with porpeſſe ſauce, made of crumbs of fine white bread, mixed with vinegar and ſugar.

This ſpecies of dolphin muſt not be confounded with that to which ſeamen give the name, the

* *Plate* iii. *fig.* 5.

latter

latter being quite another kind of fiſh, the *Coryphæna, Hippuris* of *Linnæus, p.* 446. and the *Dorado* of the *Portugueſe*, deſcribed by *Willughby, p.* 213.

25. PORPESSE.

Φώκαινα. *Ariſt. hiſt. an. Lib.* VI. *c.* 12. Turſio *Plinii, Lib.* IX. *c.* 9.
Le Marſouin. *Belon.*
Turſio. *Rondel.* 474. *Geſner piſc.* 711.
Porpeſſe. *Wil. Ich.* 31. *Raii ſyn. piſc.* 13. *Crantz's Greenl.* I. 114. *Kolben's Hiſt. Cape*, II. 200.
Le Marſouin. *Briſſon Cet.* 234.
Delphinus corpore fere coniformi, dorſo lato, roſtro ſubacuto. *Arted. ſynon.* 104.
Delphinus Phocæna. *Lin. ſyſt.* 108.
Marſwin, Tumblare. *Faun. Suec.* No. 51.

THESE fiſh are found in vaſt multitudes in all parts of the ſea that waſh theſe iſlands, but in greateſt numbers at the time when fiſh of paſſage appear, ſuch as mackrel, herrings, and ſalmon, which they purſue up the bays with the ſame eagerneſs as a pack of dogs does a hare. In ſome places they almoſt darken the ſea as they riſe above water to take breath: but porpeſſes not only ſeek for prey near the ſurface, but often deſcend to the bottom in ſearch of ſand eels, and ſea worms, which they root out of the ſand with their noſes in the ſame manner as hogs do in the fields for their food.

DESCRIP. Their bodies are very thick towards the head,

but grows ſlender towards the tail, forming the figure of a cone.

The noſe projects a little, is much ſhorter than that of the dolphin, and is furniſhed with very ſtrong muſcles, which enables it the readier to turn up the ſand.

Teeth. In each jaw are forty-eight teeth, ſmall, ſharp pointed, and a little moveable: like thoſe of the dolphin, they are ſo placed as that the teeth of one jaw locks into thoſe of the other when cloſed.

The tongue is flat, pectinated at the edges, and faſtened down to the bottom of the mouth.

The eyes ſmall; the ſpout hole on the top of the head.

On the back is one fin placed rather below the middle; on the breaſt are two fins. The tail ſemilunar.

The color of the porpeſſe is generally black, and the belly whitiſh, not but they ſometimes vary; for in the river *St. Laurence* there is a white kind; and Doctor *Borlaſe*, in his voyage to the *Scilly* iſles, obſerved a ſmall ſpecies of cetaceous fiſh, which he calls *thornbacks*, from their broad and ſharp fin on the back, ſome of theſe were brown, ſome quite white, others ſpotted: but whether they were only a variety of this fiſh, or whether they were ſmall *grampuſes*, which are alſo ſpotted, we cannot determine.

Fat. The porpeſſe is remarkable for the vaſt quantity of the fat or lard that ſurrounds the body, which

which yields a great quantity of excellent oil: from this lard, or from their rooting like ſwine, they are called in many places *ſea hogs*; the *Germans* call them *meerſchwein*; the *Swedes*, *marſuin*; and the *Engliſh*, *porpeſſe*, from the *Italian*, *porco peſce*.

It would be curious to trace the revolutions of faſhion in the article of eatables; what epicure firſt rejected the Sea-Gull and Heron; and what delicate ſtomach firſt nauſeated the greaſy fleſh of the Porpeſſe. This latter was once a royal diſh, even ſo late as the reign of *Henry* VIII. and from its magnitude muſt have held a very reſpectable ſtation at the table; for in a houſhold book of that prince, extracts of which are publiſhed in the third volume of the *Archaelogia*, it is ordered that if a Porpeſſe ſhould be too big for a horſe-load, allowance ſhould be made to the purveyor. I find that this fiſh continued in vogue even in the reign of *Elizabeth*, for Doctor *Caius* * on mentioning a Dolphin that was taken at *Shoreham*, and brought to *Thomas* Duke of *Norfolk*, who divided, and ſent it as a preſent to his friends) ſays, that it eat beſt with *Porpeſſe ſauce*, which was made of vinegar, crums of fine bread, and ſugar.

* *Opuſcula*, 116.

26. GRAMPUS.

Orca *Plinii*, *Lib.* IX. *c.* 6.
L'oudre ou grand marſouin. *Belon*, 13.
Orca. *Rondel.* 483. *Geſner piſc.* 635. Leper, Springer. *Schonevelde*, 53.
Butſkopf. *Marten's Spitzberg.* 124.
Balæna minor utraque maxilla dentata. *Sib. Phalæn.* 7, 8. *Wil. Ith.* 40. *Raii ſyn. piſc.* 15.
L'Epaulard. *Briſſon Cet.* 236.
Delphinus orca. *Lin. ſyſt.* 108.
Lopare, Delphinus roſtro ſurſum repando, dentibus latis ſerratis. *Arted. ſyn.* 106.

THIS ſpecies is found from the length of fifteen feet to that of twenty-five. It is remarkably thick in proportion to its length, one of eighteen feet being in the thickeſt place ten feet diameter. With reaſon then did *Pliny* call this an immenſe heap of fleſh, armed with dreadful teeth *.

It is extremely voracious, and will not even ſpare the porpeſſe, a congenerous fiſh. It is ſaid to be a great enemy to the whale, and that it will faſten on it like a dog on a bull, till the animal roars with pain.

The noſe is flat, and turns up at the end.

TEETH. There are thirty teeth in each jaw; thoſe before are blunt, round, and ſlender; the fartheſt ſharp and thick: between each is a ſpace adapted to receive the teeth of the oppoſite jaw when the mouth is cloſed.

* Cujus imago nulla repreſentatione exprimi poſſit alia, quam carnis immenſæ dentibus truculentis. *Lib.* IX. *c.* 6.

The

The ſpout hole is in the top of the neck. In reſpect to the number and ſite of the fins, it agrees with the dolphin.

The color of the back is black, but on each ſhoulder is a large white ſpot, the ſides marbled with black and white, the belly of a ſnowy whiteneſs. COLOR.

Theſe ſometimes appear on our coaſts, but are found in much greater numbers off the *North Cape* in *Norway*, whence they are called the *North Capers*. Theſe and all other whales are obſerved to ſwim againſt the wind, and to be much diſturbed, and tumble about with unuſual violence at the approach of a ſtorm. PLACE.

Linnæus and *Artedi* ſay, that this ſpecies is furniſhed with broad ſerrated teeth, which as far as we have obſerved, is peculiar to the *ſhark* tribe. We therefore ſuſpect that thoſe naturaliſts have had recourſe to *Rondeletius*, and copied his erroneous account of the teeth: Sir *Robert Sibbald*, who had opportunity of examining and figuring the teeth of this fiſh, and from whom we take that part of our deſcription, giving a very different account of them.

It will be but juſtice to ſay, that no one of our countrymen ever did ſo much towards forming a general natural hiſtory of this kingdom as Sir *Robert Sibbald*: he ſketched out a fine outline of the Zoology of *Scotland*, which comprehends the greateſt part of the *Engliſh* animals, and, we are told, had

had actually filled up a conſiderable part of it: he publiſhed a particular hiſtory of the county of *Fife*, and has left us a moſt excellent hiſtory of the whales which frequent the coaſt of *Scotland*. We acknowledge ourſelves much indebted to him for information in reſpect to many of thoſe fiſh, few of which frequent the ſouthern ſeas of theſe kingdoms, and thoſe that are accidentally caſt aſhore on our coaſts, are generally cut up by the country people, before an opportunity can be had of examining them.

DIV. II. CARTILAGINOUS FISH.

THIS title is given to all fiſh whoſe muſcles are ſupported by cartilages inſtead of bones, and comprehends the ſame genera of fiſh to which *Linnæus* has given the name of *amphibia nantes*: but the word *amphibia*, ought properly to be confined to ſuch animals who inhabit both elements, and can live without any inconvenience for a conſiderable ſpace, either in land or under water; ſuch as *tortoiſes*, *frogs*, and ſeveral ſpecies of *lizards*; and among the quadrupeds, hippopotami, ſeals, &c. &c. This definition therefore excludes all that form this diviſion.

Many of the cartilaginous fiſh are viviparous, being excluded from an egg, which is hatched within them. The egg conſiſts of a white and a yolk, and is lodged in a caſe, formed of a thick tough ſubſtance, not unlike ſoftened horn: ſuch are the eggs of the *Ray* and *Shark* kinds.

Some again differ in this reſpect, and are oviparous; ſuch is the *Sturgeon*, and others.

They breathe either through certain apertures beneath, as in the *Rays*; on their ſides as in the *Sharks*, &c. or on the top of the head, as in the *Pipe-fiſh*; for they have not covers to their gills like the bony fiſh.

Slender

IV. LAMPREY.

Slender Eel-ſhaped body.
Seven apertures on each ſide;
One on the top of the head.
No pectoral or ventral fins.

27. SEA.

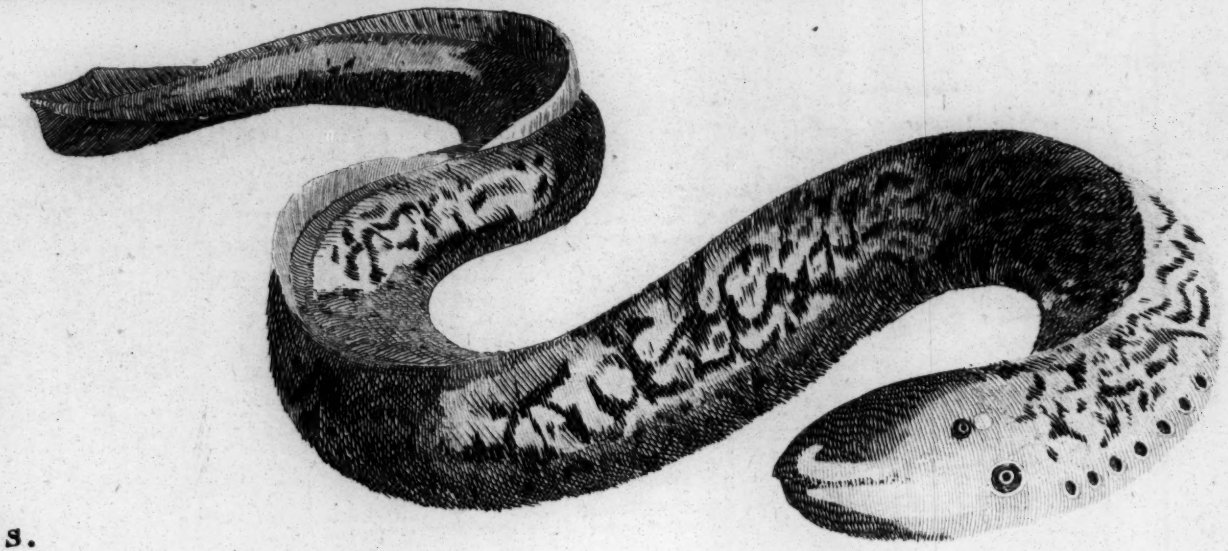
La Lamproye de mer. *Belon*, 66.
Lampetra. *Rondel.* 398.
Lampreda. *Geſner. Paralip.* 22. *Piſc.* 590.
Lamprey, or Lamprey Eel. *Wil. Ich.* 105.
Lampetra. *Raii ſyn. piſc.* 35.
Petromyzon maculoſus ordinibus dentium circiter viginti. *Arted. ſynon.* 90.
Petromyzon marinus. P. ore intus papilloſo, pinna dorſali poſteriori a cauda diſtincta. *Lin. ſyſt.* 394. *Faun. Suec.* No. 292.

LAMPREYS are found at certain ſeaſons of the year in ſeveral of our rivers, but the *Severn* is the moſt noted for them *. They are ſea fiſh, but like ſalmon, quit the ſalt waters, and aſcend the latter end of the winter, or beginning of ſpring, and after a ſtay of a few months return again to the ocean, a very few excepted. The beſt ſeaſon for them is in the months of *March*, *April*, and *May*; for they are more firm when juſt arrived out of the ſalt water than they are afterwards, being obſerved to be much waſted, and very flabby at the approach of hot weather.

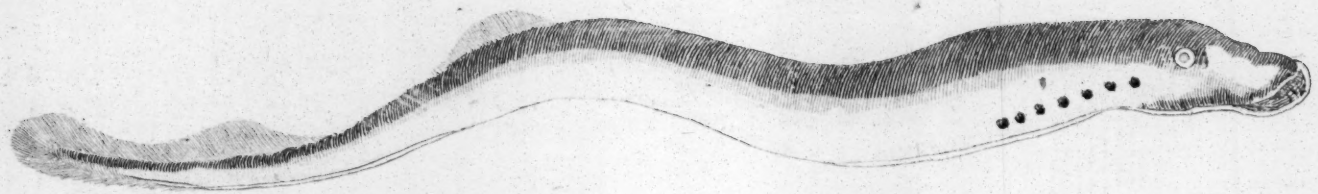
PLACE.

* They are alſo found in the moſt conſiderable of the *Scotch* and *Iriſh* rivers.

They



LAMPRIES.



Nº 28.



Nº 29.

They are taken in nets along with ſalmon and ſhad, and ſometimes in weels laid in the bottom of the river.

It has been an old cuſtom for the city of *Glouceſter*, annually, to preſent his majeſty with a *lamprey* pye, covered with a large raiſed cruſt. As the gift is made at *Chriſtmas*, it is with great difficulty the corporation can procure any freſh lampreys at that time, though they give a guinea a-piece for them, ſo early in the ſeaſon.

They are reckoned a great delicacy, either when potted or ſtewed, but are a ſurfeiting food, as one of our monarchs fatally experienced, *Henry* the Firſt's death being occaſioned by a too plentiful meal of theſe fiſh. It appears that notwithſtanding this accident, they continued in high eſteem; for *Henry* the Fourth granted protections to ſuch ſhips as brought over lampreys for the table of his royal conſort*. His ſucceſſor iſſues out a warrant to *William* of *Nantes*, for ſupplying him and his army with lampreys, whereſoever they happen to march †. Directions are afterwards given that they ſhould be taken between the mouth of the *Seyne* and *Harfleur*.

Lampreys are ſometimes found ſo large as to weigh four or five pounds.

The mouth is round and placed rather obliquely below the end of the noſe: the edges are jagged,

* *Rymer*, VIII. 429.

† Idem. IX. 544.

which

which enables them to adhere the more ſtrongly to the ſtones, as their cuſtom is, and which they do ſo firmly as not to be drawn off without ſome difficulty.

We have heard of one weighing three pounds, which was taken out of the *Eſk*, adhering to a ſtone of twelve pounds weight, ſuſpended at its mouth, from which it was forced with no ſmall pains.

There are in the mouth twenty rows of ſmall teeth, diſpoſed in circular orders, and placed far within.

The color is duſky, irregularly marked with dirty yellow, which gives the fiſh a diſagreeable look.

NOT THE MURÆNA.

We believe that the ancients were unacquainted with this fiſh; ſo far is certain, that which Doctor *Arbuthnot*, and other learned men, render the word *lamprey*, is a ſpecies unknown in our ſeas, being the *muræna* of *Ovid*, *Pliny*, and others, for which we want an *Engliſh* name. This fiſh, the *Lupus* (our Baſſe) and the *Myxo** (a ſpecies of mullet) formed that pride of *Roman* banquets, the *Tripatinam* †, ſo called according to *Arbuthnot*, from their being ſerved up in a machine with three bottoms.

*. Perhaps the ſpecies called by *Rondeletius*, *Muge*, and *Maxon.* de Piſc. P. 295.

† Atque ut luxu quoque aliqua contingat auctoritas figlinis, *Tripatinam*, inquit *Feneſtella*, appellabatur, ſumma cænarum lautitia. una erat *Muræ*narum, altera *Lupo*rum, tertia *Myxon*is piſcis. *Plinii* Hiſt. Nat. lib. XXXV. c. 12.

The

Acknowledgment

From Alice Cook Sprague, wife of Asa C. Sprague, of the
Waterville Post Office

The words *Lampetra* and *Petromyzon*, are but of modern date, invented from the nature of the fiſh; the firſt a *Lambendo petras*, the other from Πέτρος, and Μυσαω, becauſe they are ſuppoſed to lick, or ſuck the rocks.

La Lamproye d'eaue doulce. *Belon*, 67.
Lampredæ alterum genus. *Geſner piſc.* 597.
Lampetra medium genus. *Wil. Icth.* 106. *Raii ſyn. piſc.* 35.
Neunaugen. *Kram.* 282.
Petromyzon fluviatilis. *Lin. ſyſt.* 394.
Nein-oga, natting. *Faun. Suec. No.* 290. Petromyzon pinna dorſali poſteriori angulata. *Ibid.*
Gronov. Zooph. No. 159.

28. LESSER.

THIS ſpecies ſometimes grows to the length of ten inches. DESCRIP.

The mouth is formed like that of the preceding. On the upper part is a large bifurcated tooth; on each ſide are three rows of very minute ones: on the lower part are ſeven teeth, the exterior of which on each ſide is the largeſt.

The irides are yellow. As in all the other ſpecies, between the eyes, on the top of the head, is a ſmall orifice of great uſe to clear its mouth of the water that remains on adhering to the ſtones, for through that orifice it ejects the water in the ſame manner as cetaceous fiſh.

On the lower part of the back is a narrow fin, beneath that riſes another, which at the beginning

is

is high and angular, then grows narrow, ſurrounds the tail, and ends near the anus.

COLOR. The color of the back is brown or duſky, and ſometimes mixed with blue; the whole under ſide ſilvery. Theſe are found in the *Thames*, *Severn*, and *Dee*, are potted with the larger kind, and are by ſome preferred to it, as being milder taſted. Vaſt quantities are taken about *Mortlake*, and ſold to the *Dutch* for bait for their cod fiſhery. Above 450,000 have been ſold in a ſeaſon at forty ſhillings per thouſand. Of late, about 100,000 have been ſent to *Harwich* for the ſame purpoſe. It is ſaid that the *Dutch* have the ſecret of preſerving them till the Turbot fiſhery.

29. PRIDE.

Une Civelle, un Lamproyon. *Belon*, 67.
Lampetra parva et fluviatilis. *Rondel. piſc. fl.* 202.
Lampreda minima. *Geſner piſc.* 598.
Pride. *Plot, Oxf.* 182. *Plate* X.
Lampern, or Pride of the *Iſis*. *Wil. Ich.* 104. *Raii ſyn. piſc.* 35.
Petromyzon branchialis. *Lin. ſyſt.* 394.
Lin-ahl. *Faun. Suec.* No. 291.
Petromyzon pinna dorſali poſteriori lineari, labio oris latere poſtico lobato. *Ibid.*
Uhlen. *Kram.* 384.
Gronov. Zooph. No. 160.

WE have ſeen theſe of the length of eight inches, and about the thickneſs of a ſwan's quil, but they are generally much ſmaller.

They are frequent in the rivers near *Oxford*, particularly the *Iſis*, but not peculiar to that county,

ty, being found in others of the *Engliſh* rivers, where, inſtead of concealing themſelves under the ſtones, they lodge themſelves in the mud, and never are obſerved to adhere to any thing like other lampreys.

The body is marked with numbers of tranſverſe lines, that paſs croſs the ſides from the back to the bottom of the belly, which is divided from the mouth to the anus by a ſtrait line.

The back fin is not angular like that of the former, but of an equal breadth. The tail is lanceolated, and ſharp at the end.

V. RAY.

Body broad, flat, and thin.
Five apertures on each ſide placed beneath:
Mouth ſituated quite below.

* With ſharp teeth.

30. SKATE.

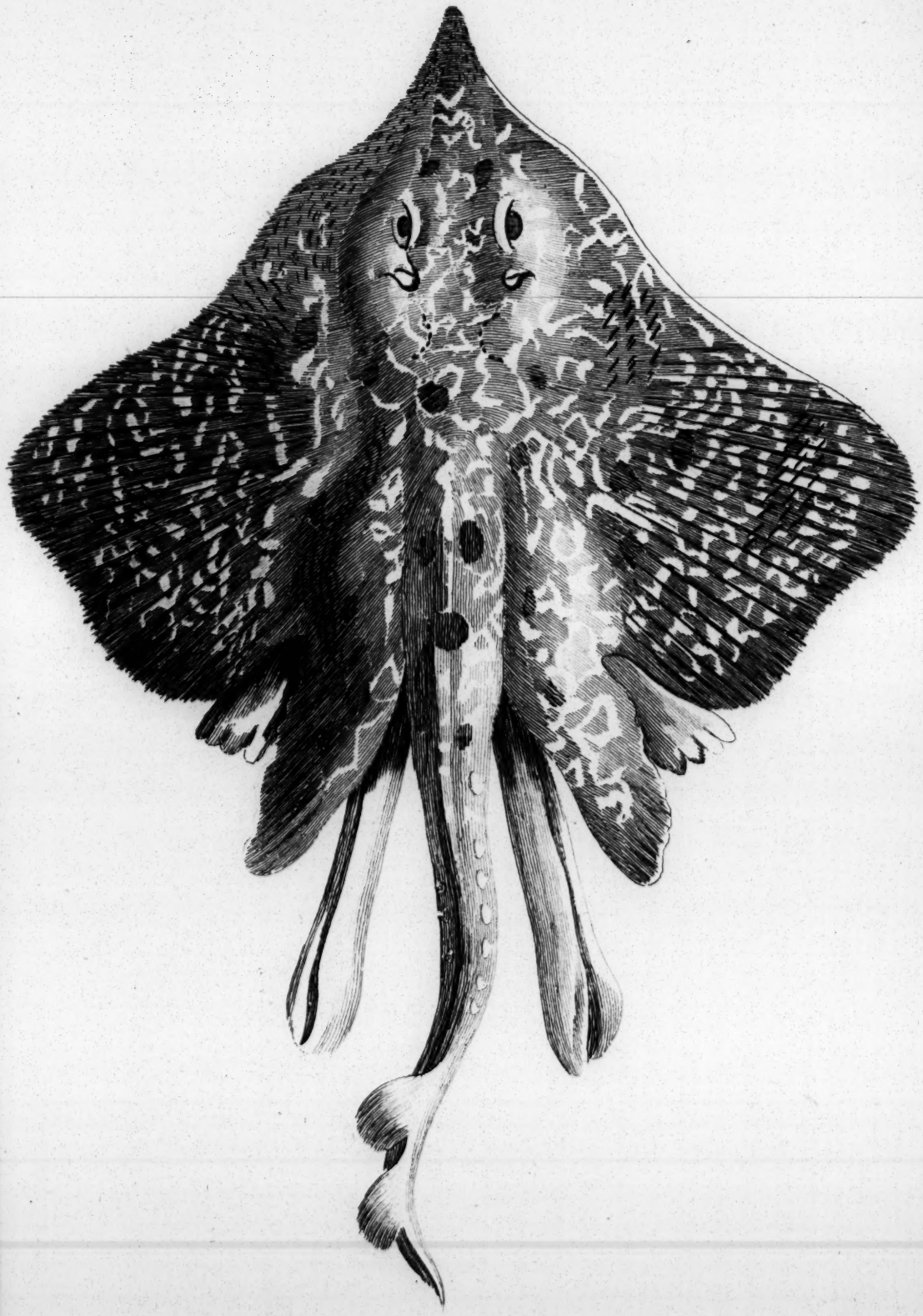
Βατὶς? *Ariſt. hiſt. an. Lib.* I. *c.* 5. *Lib.* VI. *c.* 10. *Oppian Halieut.* I. 103.
Raia undulata ſive cinerea. *Rondel.* 346. *Geſner piſc.* 791.
The Skate, or Flaire. *Wil. Ich.* 69. *Raii ſyn. piſc.* 25.
Raia Batis. *Lin. ſyſt.* 395.
Raia varia, dorſo medio glabro, unico aculeorum ordine in cauda. *Arted. ſynon.* 102.
Gronov. Zooph. No. 157.

SIZE. THIS ſpecies is the thinneſt in proportion to its bulk of any of the genus, and alſo the largeſt, ſome weighing near two hundred pounds.

DESCRIP. The noſe, though not long, is ſharp pointed; above the eyes is a ſet of ſhort ſpines: the whole upper part of that we examined was of a pale brown. Mr. *Ray* ſays, ſome he ſaw were ſtreaked with black: the lower part is white, marked with great numbers of minute black ſpots. The jaws were covered with ſmall granulated but ſharp-pointed teeth.

The tail is of a moderate length: near the end are two fins: along the top of it is one row of ſpines, and on the edges are irregularly diſperſed a few

SKATE.



a few others, which makes us imagine with Mr. *Ray*, that in this reſpect theſe fiſh vary, ſome having one, others more orders of ſpines on the tail.

It is remarked that in the males of this ſpecies the fins are full of ſpines.

GENERATION.

Skates generate in *March* and *April*, at which time they ſwim near the ſurface of the water, ſeveral of the males purſuing one female. They adhere ſo faſt together in coition, that the fiſhermen frequently draw up both together, though only one has taken the bait. The females begin to caſt their *purſes*, as the fiſhermen call them (the bags in which the young are included) in *May*, and continue doing it till *September*. In *October* they are exceedingly poor and thin; but in *November* they begin to improve, and grow gradually better till *May*, when they are in the higheſt perfection. The males go ſooner out of ſeaſon than the females.

31. SHARP-NOSED.

Βος? *Ariſt. hiſt. an. Lib.* V. *c.* 5. *Oppian Halieut.* II. 141.
Bos *Ovidii?* 94. *Plinii, Lib.* IX. *c.* 24.
Raia oxyrhincus. *Rondel.* 347. *Geſner piſc.* 792.
Wil. Ich. 71. *Raii ſyn. piſc.* 26.
Raia oxyrinchus. *Lin. ſyſt.* 395.
Raia varia tuberculis decem aculeatis in medio dorſo. *Arted. ſynon.* 101.

IN fiſhing in the *Menai* (the ſtrait that divides *Angleſea* from *Caernarvonſhire*) *July* 1768, we

took one of this ſpecies whoſe length was near ſeven feet, and breadth five feet two inches; when juſt brought on ſhore, it made a remarkable ſnorting noiſe.

The noſe was very long, narrow, and ſharp-pointed, not unlike the end of a ſpontoon.

The body was ſmooth, and very thin in proportion to the ſize; the upper part aſh colored, ſpotted with numerous white ſpots, and a few black ones.

The tail was thick; towards the end were two ſmall fins, on each ſide was a row of ſmall ſpines, with another row in the middle, which run ſome way up the back.

The lower part of the fiſh was quite white.

The mouth very large, and furniſhed with numbers of ſmall ſharp teeth bending inwards.

On its body we found the *hirudo muricata*, which adhered very ſtrongly, and when taken off left a black impreſſion.

This fiſh has been ſuppoſed to be the *Bos* of the antients, which was certainly ſome enormous ſpecies of *Ray*, though we cannot pretend to determine the particular kind: *Oppian* ſtyles it,

Ευρυτατ⊙ παντεσσι μετ' ἰχθυσιν.

Broadeſt among fiſhes.

He adds an account of its fondneſs of human fleſh, and the method it takes of deſtroying men, by

by over-laying and keeping them down by its vaſt weight till they are drowned. *Phile* gives much the ſame relation *. We are inclined to give them credit, ſince a modern writer †, of undoubted authority, gives the very ſame account of a fiſh found in the *South Seas*, the terror of thoſe employed in the pearl fiſhery. It is a ſpecies of *ray*, called there *Manta*, or the *Quilt*, from its ſurrounding and wrapping up the unhappy divers till they are ſuffocated; therefore the negroes never go down, without a ſharp knife to defend themſelves againſt the aſſaults of this terrible enemy.

32. ROUGH.

Raia aſteria aſpera. *Rondel.* 352.
Geſner piſc. 794. *Wil. Ich.* 78.
Raii ſyn. piſc. 28.

I TOOK this ſpecies in *Loch Broom* in the ſhire of

The length from the noſe to the tip of the tail was two feet nine. The tail was almoſt of the ſame length with the body.

Noſe very ſhort. Before each eye a large hooked ſpine, and behind each another, beſet with leſſer. The upper part of the body of a cinereous brown

* *De propriet. Anim.* 85.

† *Ulloa's voy.* I. 132. 8*vo. edit.*

mixed with white, and ſpotted with black; and entirely covered with ſmall ſpines. On the tail were three rows of great ſpines: all the reſt of the tail was irregularly beſet with leſſer.

The fins, and under ſide of the body were equally rough with the upper.

The teeth were flat, and rhomboidal.

33. FULLER. Raia fullonica. *Rondel.* 357. *Geſner piſc.* 797.
Raia aſpera noſtras, the white horſe. *Wil. Ichth.* 78. *Raii ſyn. piſc.* 26.
Raia fullonica. *Lin. ſyſt.*
Raia dorſo toto aculeato, aculeorum ordine ſimplici ad oculos, duplici in cauda. *Arted. ſyn.* 101. *Gronov. Zooph.* No. 155.

THIS ſpecies derives its *Latin* name from the inſtruments fullers make uſe of in ſmoothing cloth, the back being rough and ſpiney.

The noſe is ſhort and ſharp. At the corner of each eye a few ſpines. The membrane of nictitation is fringed. Teeth ſmall, and ſharp.

On the upper part of the pectoral fins are three rows of ſpines pointing towards the back, crooked, like thoſe on a fuller's inſtrument.

On the tail are three rows of ſtrong ſpines; the middle row reaches up part of the back. The tail is ſlender, and rather longer than the body.

The color of the upper part of the body is cinereous, marked uſually with numerous black ſpots:

ſpots: the lower part is white. This, as well as moſt other ſpecies of Rays, vary a little in color, according to age.

This grows to a ſize equal to the Skate. It is common at *Scarborough*, where it is called the *White Hans*, or Gullet.

34. SHAGREEN.

I MET with this ſpecies at *Scarborough*, where it is called the *French* Ray.

It encreaſes to the ſize of the *Skate*; is fond of *Launces*, or Sandeels, which it takes greedily as a bait.

The form is narrower than that of the common kinds: the noſe long and very ſharp: pupil of the eye, ſapphirine: on the noſe are two ſhort rows of ſpines: on the corner of the eyes another of a ſemicircular form: on the tail are two rows, continued a little up the back, ſmall, ſlender, and very ſharp: along the ſides of the tail is a row of minute ſpines, intermixed with innumerable little *ſpiculæ*. The upper part of the body is of a cinereous brown, covered cloſely with minute ſhagreen-like tubercles, reſembling the ſkin of the dog-fiſh: the under ſide of the body is white: from the noſe to the beginning of the pectoral fins is a tuberculated ſpace.

The teeth ſlender, and ſharp as needles.

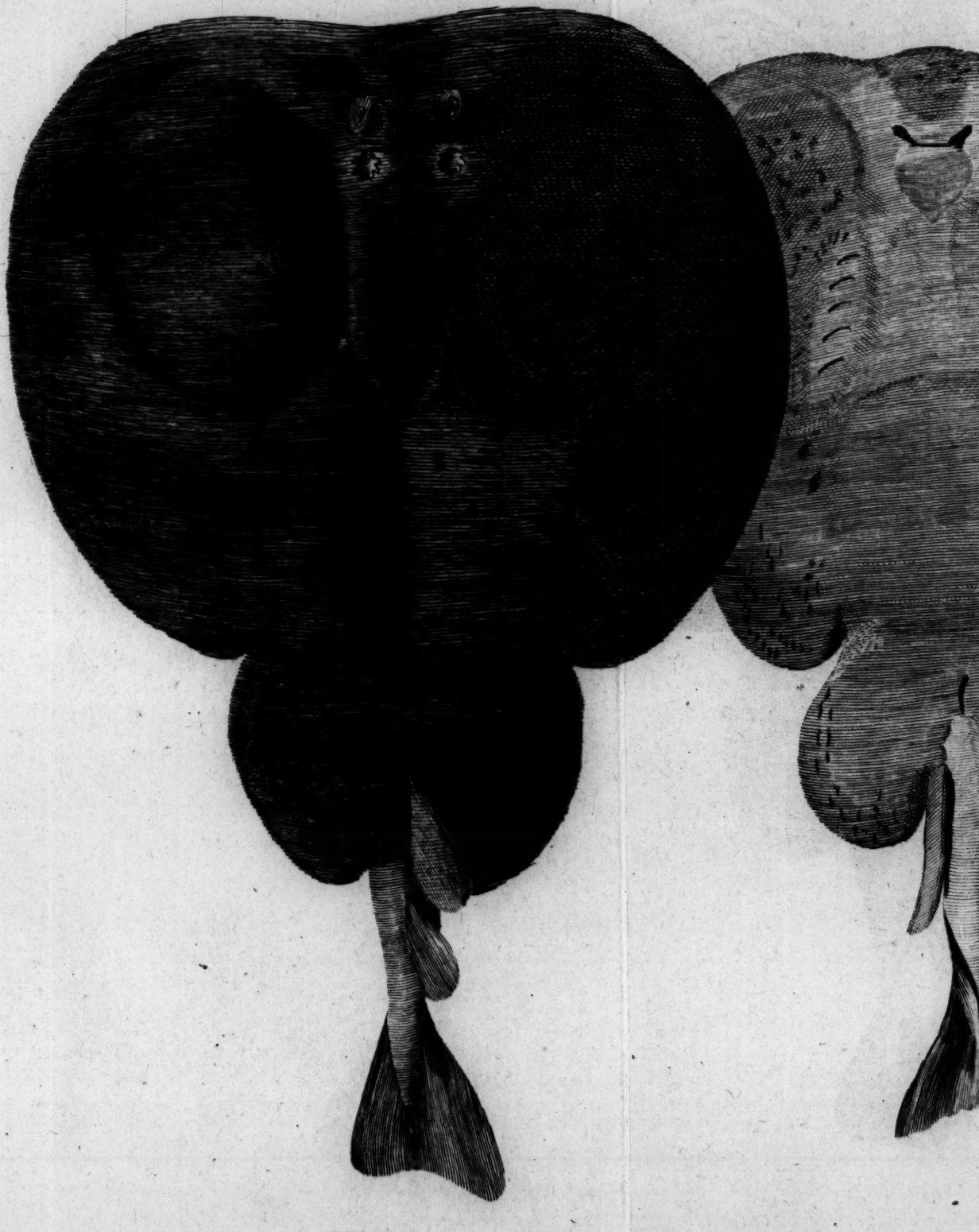
35. WHIP. Iaberete? BRAZIL: *Marcgrave.* 175.

MR. *Travis*, ſurgeon at *Scarborough*, had, in the ſummer of 1769, the tail of a Ray brought to him by a fiſherman of that town: he had taken it in the ſea off the coaſt, but flung away the body.

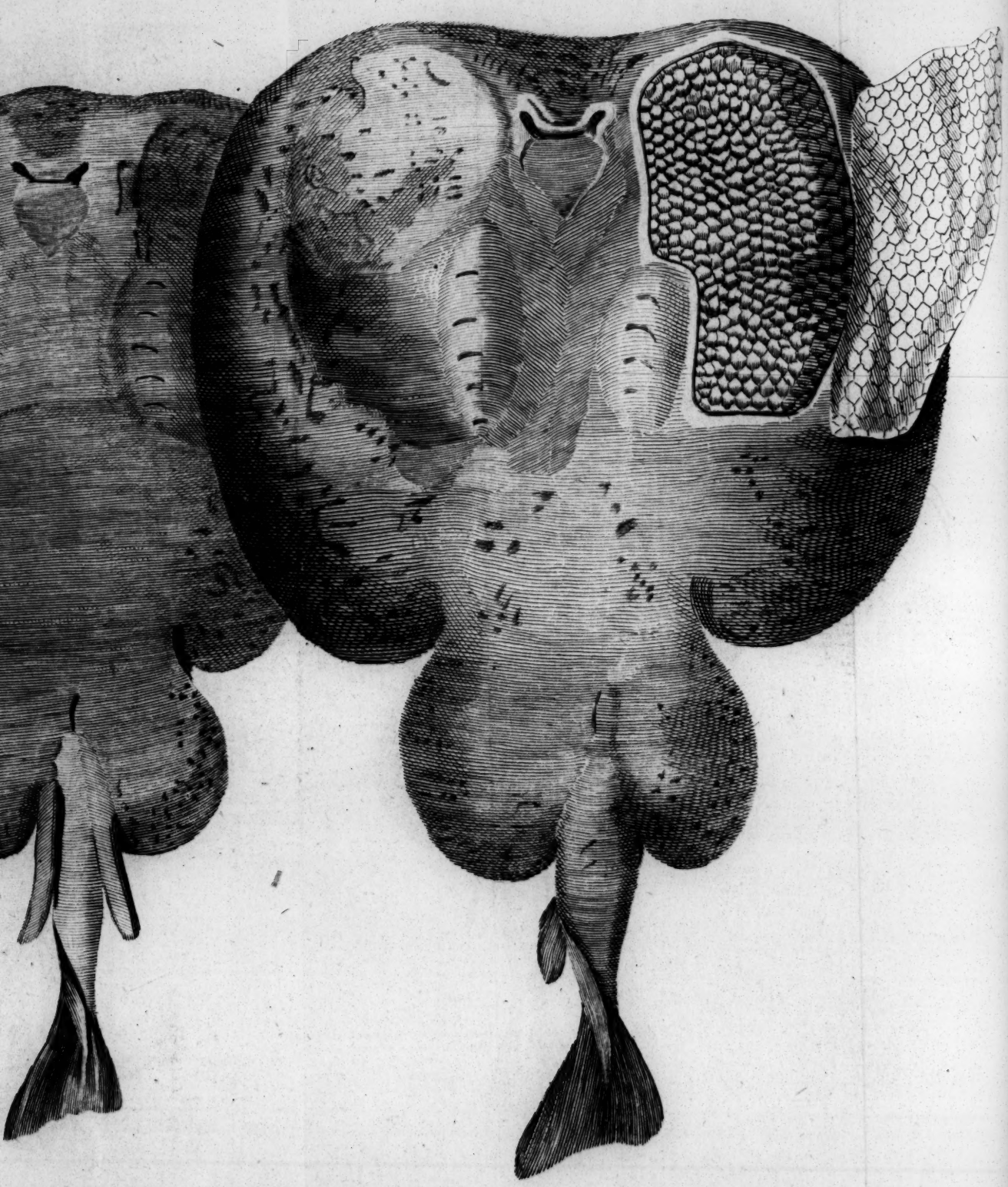
It was above three feet long, extremely ſlender and taper, and deſtitute of a fin at the end. I believe it to belong to the ſpecies called by the *Braſilians Iaberete*; and that it is likewiſe found in the *Sicilian* ſeas. I once received the tail of one from that iſland, correſponding with the deſcription Mr. *Travis* gave: I muſt alſo add, that it was entirely covered with hard obtuſe tubercles.

Pl. X.

ELECTRIC



TRIC RAY



36. ELECTRIC.

Νάρκη. *Ariſt. Hiſt. an. lib.* V. *c.* 5. IX. *c.* 37. *Oppian Halieut.* I. 104. II. 56. III. 149.
Torpedo. *Plinii lib.* IX. *c.* 42.
La Tremble ou Torpille. *Belon* 78, 81.
Torpedo. *Rondel. Geſner piſc.* Torpedo. Cramp Fiſh. *Will. Icth.* 81. *Raii ſyn. piſc.* 28. *Smith's Hiſt. Waterford*, 271.
Raia Torpedo. *Lin. ſyſt.* 395.
Raia tota lævis. *Arted. ſynon.* 102. *Gronov. Zooph. No.* 153. *tab.* 9.
Ph. Tr. 1773, 1774.

THE narcotic or numbing quality of this fiſh has been taken notice of in all ages: it is ſo powerful when the fiſh is alive, as inſtantly to deprive the perſon who touches it of the uſe of his arm, and even to affect him if he touches it with a ſtick. *Oppian* goes ſo far as to ſay, that it will benumb the aſtoniſhed fiſherman, even through the whole length of line and rod.

Ναὶ μὲν κι ΝΑΡΚΗ σφέτερον νόον ἐκ απολείπει,
Πληγῆ ἀνίαζεσα. Τιταινομένη δ' ὀδυνησιν
Ορμιῆ λαγόνας προστύσσεται. Αιψα δε χαίτης
Ιππείης δόνακος τε διέδραμεν, ἐς δ' ἁλιῆ⊙
Δεξιτερην ἔσκηψε φερώνυμον ἰχθυ⊙ ἄλγ⊙.
Πολλάκι δ' εκ παλάμης κάλαμ⊙ πέσεν, ὅπλά τε θήρης
Τοῖ⊙ γαρ κρύσαλλ⊙ ενιζεται ἀυτικα χειρί.

The hook'd *Torpedo* ne'er forgets its art,
But ſoon as ſtruck begins to play its part,
And to the line applies its magic ſides,
Without delay the ſubtile power glides
Along the pliant rod, and ſlender hairs,

Then

Then to the fiſher's hand as ſwift repairs:
Amaz'd he ſtands; his arm's of ſenſe bereft,
Down drops the idle rod; his prey is left:
Not leſs benumb'd, than if he had felt the whole
Of froſt's ſevereſt rage beneath the *arctic* pole.

But great as its powers are when the fiſh is in vigor, they are impaired as it declines in ſtrength, and totally ceaſe when it expires. They impart no noxious qualities to it as a food, being commonly eaten by the *French*, who find them more frequently on their coaſts than we do on ours.

Galen affirms, that the meat of the *torpedo* is of ſervice to epileptic patients: and that the ſhock of the living fiſh applied to the head is efficacious in removing any pains in that part.

We may mention a double uſe in this ſtrange power the *torpedo* is endued with; the one, when it is exerted as a means of defence againſt voracious fiſh, who are at a touch deprived of all poſſibility of ſeizing their prey.

The other is well explained by *Pliny*, who tells us, it attains by the ſame powers its end in reſpect to thoſe fiſh it wiſhes to enſnare. *Novit* torpedo *vim ſuam, ipſa non torpens; merſaque in limo ſe occultat piſcium qui ſecuri ſupernatantes obtorpuere, corripiens* *.

* "The *torpedo* is well acquainted with its own powers "though itſelf never affected by them. It conceals itſelf in "the mud, and benumbing the fiſh that are careleſsly ſwim- "ming about, makes a ready prey of them."

But the acknowledgements of every naturaliſt are due to *John Walſh*, Eſquire, for his curious and unwearied reſearches into the nature of this fiſh; and for the firſt certainty we had of its being a native of our ſeas. To him I am particularly bound, for being enabled to correct my errors in the former account.

IT is frequently taken in *Torbay*; has been once caught off *Pembroke*, and ſometimes near *Waterford* in *Ireland*. It is generally taken, like other flat fiſh, with the trawl; but there is an inſtance of its taking a bait, which vindicates the fine account that *Oppian* has left us of this fiſh. It commonly lies in water of about forty fathoms depth; and in company with the congeneous Rays.

The *torpedo* brings forth its young at the autumnal *equinox* as affirmed by *Ariſtotle*. A gentleman of *la Rochelle*, on diſſecting certain females of this ſpecies, the 10th of *September*, found in the *matrices*, ſeveral of the *fœtuſes* quite formed, and nine eggs, in no ſtate of forwardneſs: ſuperfœtation ſeems therefore to be a property of this fiſh.

The food of the *torpedo* is fiſh; a ſurmullet and a plaiſe having been found in the ſtomach of two of them. The ſurmullet is a fiſh of that ſwiftneſs, that it was impoſſible for the torpedo to take it by purſuit. It is probable, that by their electric ſtroke, they ſtupify their prey; yet the crab and ſea leech will venture to annoy them.

They

They will live four and twenty hours out of the ſea; and but very little longer if placed in freſh water.

They inhabit ſandy places; and will bury themſelves ſuperficially in it, by flinging the ſand over, by a quick flapping of all the extremities. It is in this ſituation that the *torpedo* gives his moſt forcible ſhock, which throws down the aſtoniſhed paſſenger, who inadvertently treads upon him.

In our ſeas it grows to a great ſize, and above eighty pounds weight. My deſcription was taken from a ſmaller, which I had the pleaſure of doing in company with Mr. *Walſh*.

Its length was eighteen inches from the head to the tip of the tail; the greateſt breadth twelve inches. I could not inform myſelf of the weight of this; but that of one, that meaſured four feet in length, and two and a half in breadth, was fifty-three pounds, avoirdupoiſe.

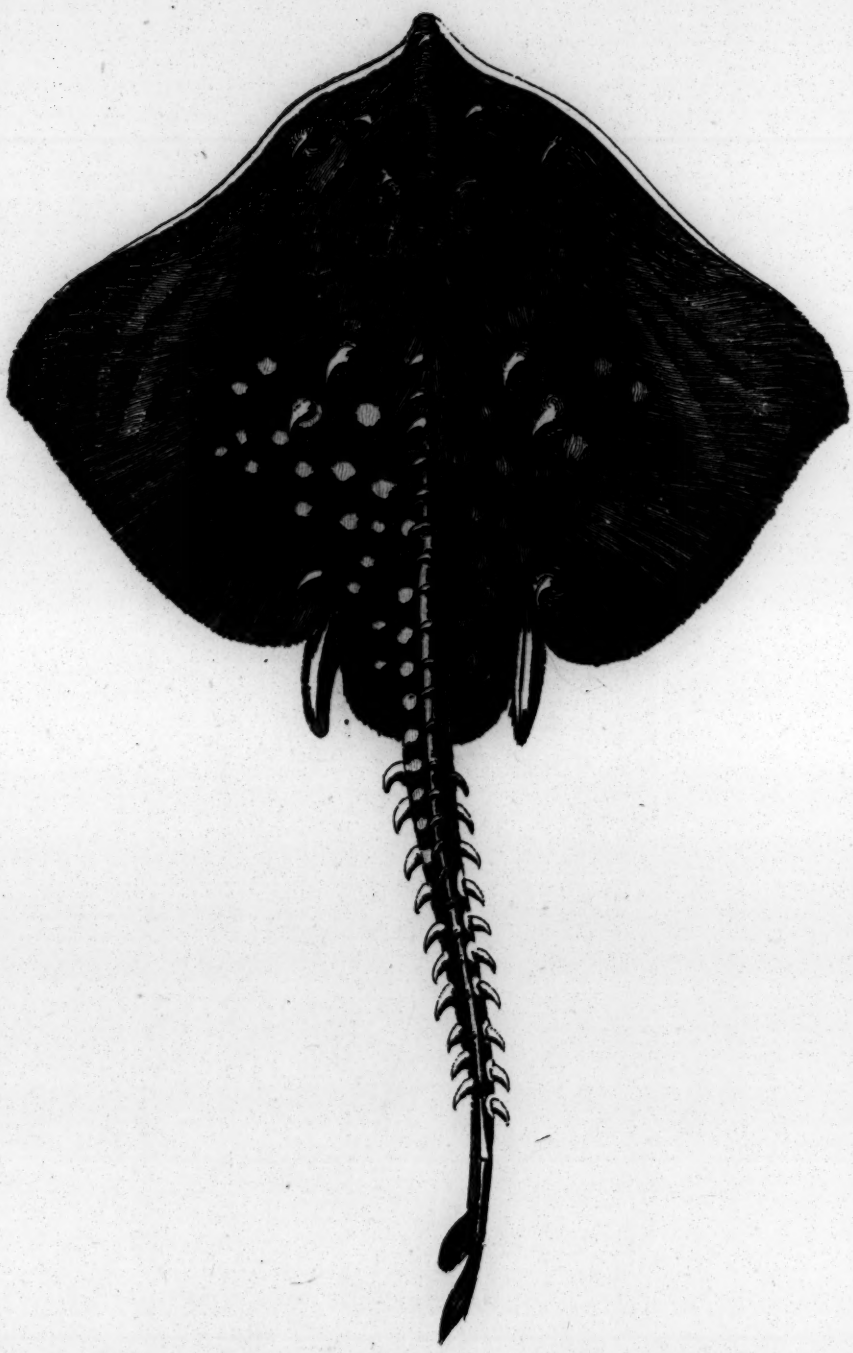
The tail was ſix inches long; was pretty thick and round: the caudal fin broad and abrupt.

The head and body, which were indiſtinct, were nearly round; about two inches thick in the middle, attenuating to extreme thinneſs on the edges: below the body, the ventral fins formed on each ſide a quarter of a circle. The two dorſal fins were placed on the trunk of the tail.

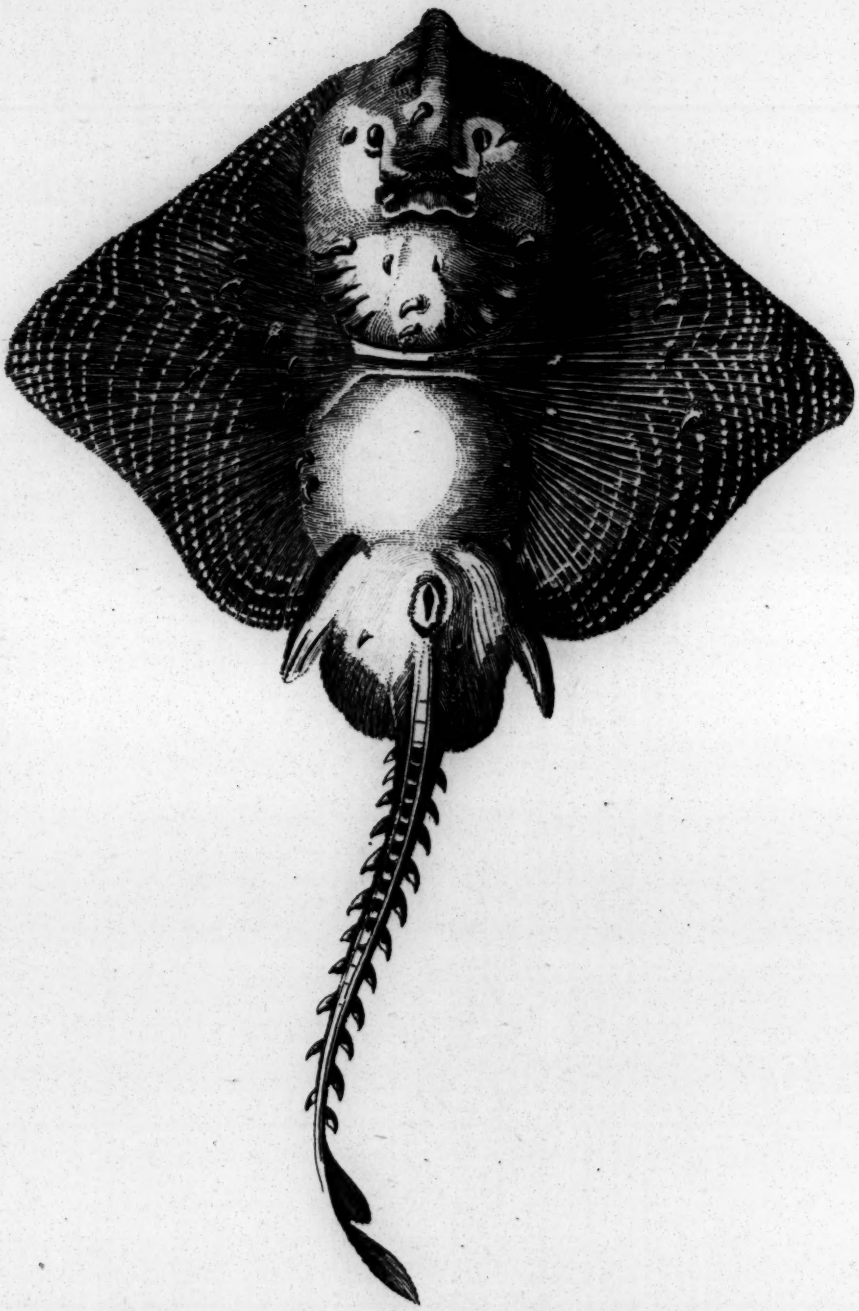
The eyes were ſmall, placed near each other: behind each was a round ſpiracle, with ſix ſmall cutaneous rags on their inner circumference.

Mouth

THORN-BACK.



THORNBACK.



Mouth ſmall: teeth minute, ſpicular.

Five openings to the gills, as in others of this genus.

The ſkin every where ſmooth: cinereous brown above; white beneath.

** With blunt Teeth.

La Raye bouclée. *Belon* 70.
Raia clavata. *Rondel.* 353.
Geſner piſc. 795.
Steinroch. *Shonevelde*, 59.
Thornback. *Wil. Icth.* 74.
Raii ſyn. piſc. 26.
Raia clavata. *Lin. ſyſt.* 297. 37. THORNBACK.
Gronov. Zooph. No. 154.
R. aculeata dentibus tuberculoſis, cartilagine tranſverſa abdominali. *Arted. ſynon.* 94.
Racka *Faun. Suec.* No. 293.

THIS common fiſh is eaſily diſtinguiſhed from the others by the rows of ſtrong ſharp ſpines, diſpoſed along the back and tail. In a large one we ſaw, were three rows on the back, and five on the tail, all inclining towards its end.

On the noſe, and on the inner ſide of the forehead, near the eyes, were a few ſpines, and others were ſcattered without any order on the upper part of the pectoral fins.

The mouth was ſmall, and filled with granulated teeth.

The upper part of the body was of a pale aſh color, marked with ſhort ſtreaks of black, and the ſkin rough, with ſmall tubercles like ſhagreen.

The

The belly white, croſſed with a ſtrong ſemilunar cartilage beneath the ſkin: in general the lower part was ſmooth, having only a few ſpines on each ſide.

The young fiſh have very few ſpines on them, and their backs are often ſpotted with white, and each ſpot is encircled with black.

Food. This ſpecies frequents our ſandy ſhores, are very voracious, and feed on all ſorts of flat fiſh, and are particularly fond of herrings and ſand eels, and ſometimes eat cruſtaceous animals, ſuch as crabs.

Theſe ſometimes weigh fourteen or fifteen pounds, but with us ſeldom exceed that weight.

They begin to generate in *June*, and bring forth their young in *July* and *Auguſt*, which (as well as thoſe of the ſkate) before they are old enough to breed, are called *maids*. The thornback begins to be in ſeaſon in *November*, and continues ſo later than ſkate, but the young of both are good at all times of the year.

Τρυγων. *Ariſt. Hiſt. an. lib.* VIII. *c.* 13. IX. 37. *Oppian. Halieut.* I. 104. II. 462.
Paſtinaca *Plinii lib.* IX. *c.* 42. 38.
La Paſtenade de mer, Tourterelle, ou Tareronde. *Belon* 83.
Paſtinaca. *Rondel.* 331. *Geſner piſc.* 679.
Steckroche. Grone Tepel. *Schonevelde*, 58.
Paſtinaca marina lævis. *Wil. piſc.* 67.
Fire Flaire. *Raii ſyn. piſc.* 24.
Raia Paſtinaca. *Lin. ſyſt.* 396.
Raia corpore glabro, aculeo longo anterius ſerrato, cauda apterygia. *Arted. ſynon.* 100. *Gronov. Zooph. No.* 158.

38. STING.

THE weapon with which nature has armed this fiſh, hath ſupplied the antients with many tremendous fables relating to it. *Pliny*, *Ælian**, and *Oppian*, have given it a venom that affects even the inanimate creation: trees that are ſtruck by it inſtantly loſe their verdure and periſh, and rocks themſelves are incapable of reſiſting the potent poiſon.

The enchantreſs *Circe*, armed her ſon with a ſpear headed with the ſpine of the *Trygon*, as the moſt irreſiſtible weapon ſhe could furniſh him with, and with which he afterwards committed parricide, unintentionally, on his father *Ulyſſes*.

That ſpears and darts might, in very early times, have been headed with this bone inſtead of iron, we have no kind of doubt: that of another ſpecies of this fiſh being ſtill uſed to point the ar-

* *Hiſt. an. lib.* II. *c.* 36.

rows

rows of ſome of the *South American Indians*, and is, from its hardneſs, ſharpneſs, and beards, a moſt dreadful weapon.

But in reſpect to its venemous qualities, there is not the leſt credit to be given to the opinion, though it was believed (as far as it affected the animal world) by *Rondeletius*, *Aldrovand*, and others, and even to this day by the fiſhermen in ſeveral parts of the kingdom. It is in fact the weapon of offence belonging to the fiſh, capable of giving a very bad wound, and which is attended with dangerous ſymptoms, when it falls on a tendinous part, or on a perſon in a bad habit of body. As to any fiſh having a ſpine charged with actual poiſon, we muſt deny our aſſent to it, though the report is ſanctified by the name of *Linnæus* *.

DESCRIP. This ſpecies does not grow to the bulk of the others: that which we examined was two feet nine inches from the tip of the noſe to the end of the tail; to the origin of the tail one foot three inches; the breadth one foot eight.

The body is quite ſmooth, of a ſhape almoſt round, and is of a much greater thickneſs, and

* *Syſt. Nat.* I. 348. He inſtances the *Paſtinaca*, the *Torpedo*, and the *Tetrodon lineatus*. The firſt is incapable of conveying a greater injury than what reſults from the mere wound. The ſecond, from its electric effluvia: and the third, by imparting a pungent pain like the ſting of nettles occaſioned by the minute ſpines on its abdomen.

mo

more elevated form in the middle than any other *Rays*, but grows very thin towards the edges.

The noſe is very ſharp pointed, but ſhort; the mouth ſmall, and filled with granulated teeth.

The irides are of a gold color: behind each eye the orifice is very large.

The tail is very thick at the beginning: the ſpine is placed about a third the length of the former from the body, is about five inches long, flat on the top and bottom, very hard, ſharp pointed, and the two ſides thin, and cloſely and ſharply bearded the whole way. The tail extends four inches beyond the end of this ſpine, and grows very ſlender at the extremity. Tail.

Theſe fiſh are obſerved to ſhed their ſpine, and to renew them annually; ſometimes the new ſpine appears before the old one drops off, and the *Corniſh* call this ſpecies *Cardinal Triloſt*, or three tailed, when ſo circumſtanced.

The color of the upper part of the body is a dirty yellow, the middle part of an obſcure blue: the lower ſide white, the tail and ſpine duſky.

VI. SHARK.

Slender body growing leſs towards the tail.
Two fins on the back.
Rough ſkin.
Five apertures on the ſides of the neck.
Mouth generally placed far beneath the end of the noſe.
The upper part of the tail longer than the lower.

* Without the anal fin.

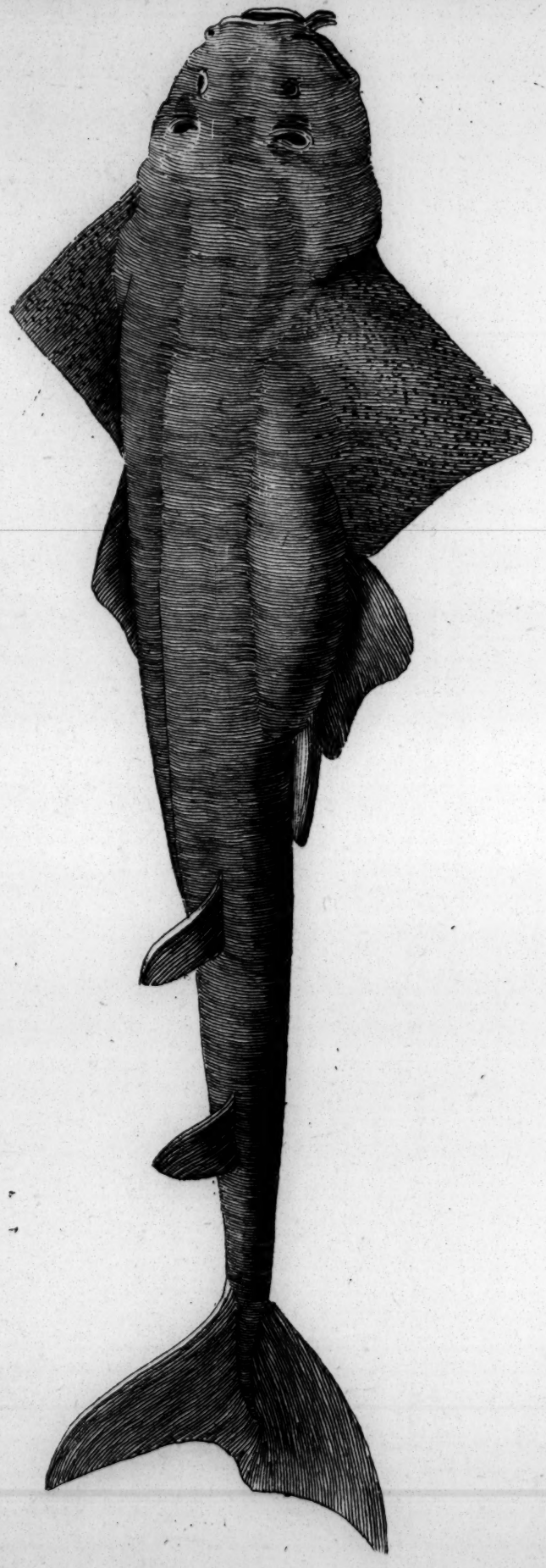
39. Angel.

Pisn. *Ariſt. Hiſt. an. lib.* V. *c.* 5, &c. *Athenæus, lib.* VII. *p.* 319.
Oppian Halieut. I. 388, 742.
Squatina *Plin. lib.* IX. *c.* 12.
Rhina, ſc. Squatus. *lib.* XXXII. *c.* 11.
L'Ange, ou Angelot de mer. *Belon* 69.
Squatina. *Rondel.* 367. *Geſner piſc.* 899. *Wil. Icth.* 79.
Monk, or Angel Fiſh. *Raii ſyn. piſc.* 26.
Squalus ſquatina. *Lin. ſyſt.* 398. S. pinna ani nulla, caudæ duabus, ore terminali, naribus cirroſis. *Ibid.*
Sq. pinna ani carens, ore in apice capitis. *Arted. ſyn.* 95. *Gronov. Zooph. No.* 151.

THIS is the fiſh which connects the genus of Rays and Sharks, partaking ſomething of the character of both; yet in an exception to each in the ſituation of the mouth, which is placed at the extremity of the head.

It is a fiſh not unfrequent on moſt of our coaſts, where it prowls about for prey like others of the kind. It is extremely voracious, and, like the

Ray



ANGEL SHARK.

Ray, feeds on flounders and flat fiſh, which keep at the bottom of the water, as we have often found on opening them. It is extremely fierce and dangerous to be approached. We knew an inſtance of a fiſherman, whoſe leg was terribly tore by a large one of this ſpecies, which lay within his nets in ſhallow water, and which he went to lay hold of incautiouſly. FIERCENESS.

The aſpect of theſe, as well as the reſt of the genus have much malignity in them: their eyes are oblong, and placed lengthways in their head, ſunk in it, and overhung by the ſkin, and ſeem fuller of malevolence than fire.

Their ſkin is very rough; the antients made uſe of it to poliſh wood and ivory *, as we do at preſent that of the greater dog-fiſh. The fleſh is now but little eſteemed on account of its coarſeneſs and rankneſs, yet *Archeſtratus* (as quoted by *Athenæus*, p. 319.) ſpeaking of the fiſh of *Miletus*, gives this the firſt place in reſpect to its delicacy of the whole cartilaginous tribe.

They grow to a great ſize; we have ſeen them of near an hundred weight. DESCRIP.

The head is large, the teeth broad at their baſe, but ſlender and very ſharp above, and diſpoſed in five rows all round the jaws. Like thoſe of all Sharks, they are capable of being raiſed or depreſſed by means of muſcles uniting them to the

* Qua lignum et ebora poliuntur. *Plinii lib.* IX. *c.* 12.

jaws, not being lodged in ſockets as the teeth of cetaceous fiſh are.

The tongue is large; the eyes ſmall; the pupil of a pale green; the irides white, ſpotted with brown: behind each eye is a ſemilunar orifice.

The back is of a pale aſh color, and very rough; along the middle is a prickly tuberculated line: the belly is white and ſmooth.

The pectoral fins are very large, and extend horizontally from the body to a great diſtance; they have ſome reſemblance to wings, ſo writers have given this the name it bears in this work.

The ventral fins are placed in the ſame manner, and the double penis is placed in them, which forms another character of the males in this and the laſt genus.

The tail is bifurcated, the upper lobe rather the longeſt: not very remote from the end on the back are two fins.

40. PICKED.

Ἀκανθίας γαλέος. *Ariſt. Hiſt. an. Lib.* VI. *c.* 10. *Oppian Halieut.* I. 380.
Επινωτις *Athenæi, Lib.* VII. *p.*
L' Eſguillats. *Belon*, 61.
Galeus acanthias. *Rondel.* 373. *Geſner piſc.* 607.
Sperhaye, Dornhundt. *Schonevelde*, 29.
Galeus acanthias ſive ſpinax. *Wil. Ich.* 56.
The picked dog, or hound fiſh. *Raii ſyn. piſc.* 21.
Squalus ſpinax. *Lin. ſyſt.* 397. Sq. pinna ani nulla, dorſalibus ſpinoſis, corpore teretiuſculo. *Ibid.*
Sq. pinna ani nulla, corpore ſubrotundo. *Arted. ſynon.* 94.
Hai. *Faun. Suec.* No. 295. *Gronov. Zooph.* 149.

NAME.

THE picked dog fiſh takes its name from a ſtrong and ſharp ſpine placed juſt before each of

Pl. XIII.

BASKING SHARK.

of the back fins, diſtinguiſhing it at once from the reſt of the *Britiſh* ſharks.

DESCRIP. The noſe is long, and extends greatly beyond the mouth, but is blunt at the end.

The teeth are diſpoſed in two rows, are ſmall and ſharp, and bend from the middle of each jaw towards the corners of the mouth.

The firſt back fin is placed nearer the head than the tail; the other is ſituated very near the latter.

The tail is finned for a conſiderable ſpace beneath, and the upper part is much the longeſt.

The back is of a browniſh aſh color; the belly white.

It grows to the weight of about twenty pounds.

This ſpecies ſwarms on the coaſts of *Scotland*, where it is taken, ſplit and dried: and is a food among the common people. It forms a ſort of internal commerce, being carried on women's backs, fourteen or ſixteen miles up the country, and ſold; or exchanged for neceſſaries.

** With the anal fin.

SQUALUS maximus. Sq. dentibus caninis, pinna dorſali anteriore majore. *Syſt. nat.* 400.
Rugden. Squalus maximus. *Gunner Act. Nidros.* III. 33. *Tab.* II.
Sun-fiſh. *Smith's hiſt. Cork,* II. 292. *Hiſt. Waterford,* 271.

41. BASKING.

THIS ſpecies has been long known to the inhabitants of the ſouth and weſt of *Ireland*

and *Scotland*, and thoſe of *Caernarvonſhire* and *Angleſea*; but having never been conſidered in any other than a commercial view, has till this time remained undeſcribed by any *Engliſh* writer; and what is worſe, miſtaken for and confounded with the *luna* of *Rondeletius*, the ſame that our *Engliſh* writers call the *ſun-fiſh*.

The *Iriſh* and *Welch* give it the ſame name, from its lying as if to ſun itſelf on the ſurface of the water; and for the ſame reaſon we have taken the liberty of calling it the *baſking ſhark*. It was long taken for a ſpecies of whale, till we pointed out the branchial orifices on the ſides, and the perpendicular ſite of the tail.

Theſe are migratory fiſh, or at leſt it is but in a certain number of years that they are ſeen in multitudes on the *Welch* ſeas, though in moſt ſummers a ſingle and perhaps ſtrayed fiſh appears. They inhabit the Northern ſeas, even as high as the *arctic* circle.

They viſited the bays of *Caernarvonſhire* and *Angleſea* in vaſt ſhoals, in the ſummers of 1756*, and a few ſucceeding years, continuing there only the hot months, for they quitted the coaſt about *Michaelmas*, as if cold weather was diſagreeable to them.

They appear in the Firth of *Clyde*; and among

* Some old people ſay they recollect the ſame ſort of fiſh viſiting theſe ſeas in vaſt numbers about forty years ago.

the

the *Hebrides* in the month of *June*, in ſmall droves of ſeven or eight; but oftener in pairs. They continue in thoſe ſeas, till the latter end of *July*, when they diſappear.

They had nothing of the fierce and voracious nature of the ſhark kind, and were ſo tame as to ſuffer themſelves to be ſtroked: they generally lay motionleſs on the ſurface, commonly on their bellies, but ſometimes, like tired ſwimmers, on their backs.

FOOD. Their food ſeemed to conſiſt entirely of ſea plants, no remains of fiſh being ever diſcovered in the ſtomachs of numbers that were cut up, except ſome green ſtuff, the half digeſted parts of *algæ*, and the like. *Linnæus* ſays, it feeds on *meduſæ*.

At certain times they were ſeen ſporting on the waves, and leaping with vaſt agility ſeveral feet out of the water. They ſwim very deliberately, with the dorſal fins above water.

Their length was from three to twelve yards, and ſometimes even longer.

Their form was rather ſlender, like others of the ſhark kind.

TEETH. The upper jaw was much longer than the lower, and blunt at the end. The mouth placed beneath, and each jaw furniſhed with numbers of ſmall teeth: thoſe before were much bent, thoſe more remote in the jaws were conic and ſharp pointed.

On the ſides of the neck were five large tranſverſe apertures to the gills.

On the back were two fins; the firſt very large,

not directly in the middle, but rather nearer the head; the other ſmall, and ſituated near the tail. On the lower part were five others; viz. two pectoral fins; two ventral fins, placed juſt beneath the hind fin of the back; and a ſmall anal fin. Near theſe, the male had two genitals, as in other ſharks; and between theſe fins was ſituated the pudendum of the female.

The tail was very large, and the upper part remarkably longer than the lower.

The color of the upper part of the body was a deep leaden; the belly white.

The ſkin was rough, like ſhagreen, but leſs ſo on the belly than the back.

Within ſide the mouth, towards the throat, was a very ſhort ſort of whalebone.

Liver. The liver was of a great ſize, but that of the female was the largeſt; ſome weighed above a

Oil. thouſand pounds, and yielded a great quantity of pure and ſweet oil, fit for lamps, and alſo much uſed by the people who took them, to cure bruiſes, burns, and rheumatic complaints. A large fiſh has afforded to the captors a profit of twenty pounds. They were viviparous, a young one about a foot in length being found in the belly of a fiſh of this kind.

The meaſurements of one, I found dead on the ſhore of *Loch Ranza* in the iſle of *Arran*, were as follow. The whole length twenty ſeven feet, four inches: firſt dorſal fin, three feet; ſecond,

one

one foot; pectoral fin, four feet; ventral, two feet: the upper lobe of the tail, five feet; the lower, three.

They will permit a boat to follow them, without accelerating their motion, till it comes almoſt within contact; when a harpooneer ſtrikes his weapon into them, as near to the gills as poſſible. But they are often ſo inſenſible, as not to move till the united ſtrength of two men have forced in the harpoon deeper. As ſoon as they perceive themſelves wounded, they fling up their tail and plunge headlong to the bottom; and frequently coil the rope round them in their agonies, attempting to diſengage the harpoon from them by rolling on the ground, for it is often found greatly bent.

As ſoon as they diſcover that their efforts are in vain, they ſwim away with amazing rapidity, and with ſuch violence, that there has been an inſtance of a veſſel of ſeventy tons having been towed away againſt a freſh gale. They ſometimes run off with two hundred fathoms of line, and with two harpoons in them; and will employ the fiſhers for twelve, and ſometimes twenty four hours before they are ſubdued. When killed, they are either hawled on ſhore, or if at a diſtance from land, to the veſſel's ſide. The liver (the only uſeful part) is taken out, and melted into oil in kettles provided for that purpoſe. A large fiſh will yield eight barrels of oil; and two of worthleſs ſediment.

The fiſhers obſerved on them a ſort of leech of a reddiſh

a reddiſh color, and about two feet long, but which fell off when the fiſh was brought to the ſurface of the water, and left a white mark on the ſkin.

42. WHITE.

Λαμία? *Ariſt. Hiſt. an. Lib.* V. *c.* 5. IX. *c.* 37.
Λάμυη. *Oppian Halieut.* I. 370. V. 36.
Καρχαριας Κυων *Athen. Lib.* VII. *p.* 310.
Lamia? *Plinii, Lib.* IX. *c.* 24.
Le chien carcharien ou Perlz fiſch de Norvege. *Belon*, 52, 87.
Lamia. Tiburo. *Rondel.* 489, 390.
Canis Carcharias. *Geſner piſc.* 173.
White Shark. *Wil. Ichth.* 47. *Raii ſyn. piſc.* 18.
Squalus carcharias. Sq. dorſo plano dentibus ſerratis. *Lin. ſyſt.* 400.
Arted. ſynon. 89. *Gronov. Zooph.* No. 143.

SIZE.

THIS grows to a very great bulk, *Gillius* ſays, to the weight of four thouſand pounds; and that in the belly of one was found a human corps entire, which is far from incredible, conſidering their vaſt greedineſs after human fleſh.

They are the dread of the ſailors in all hot climates, where they conſtantly attend the ſhips in expectation of what may drop overboard; a man that has that misfortune periſhes without redemption: they have been ſeen to dart at him, like gudgeons to a worm. A maſter of a *Guinea* ſhip informed me, that a rage of ſuicide prevailed among his new bought ſlaves, from a notion the unhappy creatures had, that after death they ſhould be

reſtored

reſtored again to their families, friends, and country. To convince them at leſt that they ſhould not re-animate their bodies, he ordered one of their corpſes to be tied by the heels to a rope, and lowered into the ſea, and though it was drawn up again as faſt as the united force of the crew could be exerted, yet in that ſhort ſpace the ſharks had devoured every part but the feet, which were ſecured at the end of the cord.

Swimmers very often periſh by them; ſometimes they loſe an arm or leg, and ſometimes are bit quite aſunder, ſerving but for two morſels for this ravenous animal: a melancholy tale of this kind is related in a *Weſt India* ballad, preſerved in Doctor *Percy*'s Reliques of ancient *Engliſh* Poetry *.

The mouth of this fiſh is furniſhed with (ſometimes) a ſixfold row of teeth, flat, triangular, exceedingly ſharp at their edges, and finely ſerrated. We have one that is rather more than an inch and an half long. *Grew* † ſays, that thoſe in the jaws of a ſhark two yards in length, are not half an inch, ſo that the fiſh to which mine belonged muſt have been ſix yards long, provided the teeth and body keep pace in their growth ‡.

This dreadful apparatus, when the fiſh is in a

* *Vol.* I. 331.

† *Rarities*, 91.

‡ Foſſil teeth of this fiſh are very frequent in *Malta*, ſome of which are four inches long.

ſtate

ſtate of repoſe, lie quite flat in the mouth, but when he ſeizes his prey, he has power of erecting them, by the help of a ſet of muſcles that join them to the jaw.

The mouth is placed far beneath, for which reaſon theſe, as well as the reſt of the kind, are ſaid to be obliged to turn on their backs to ſeize their prey, which is an obſervation as antient as the days of *Pliny* *.

The eyes are large; the back broad, flat, and ſhorter than that of other ſharks. The tail is of a ſemilunar form, but the upper part is longer than the lower. It has vaſt ſtrength in the tail, and can ſtrike with great force, ſo that the ſailors inſtantly cut it off with an axe as ſoon as they draw one on board.

The pectoral fins are very large, which enables it to ſwim with great ſwiftneſs.

The color of the whole body and fins is a light aſh.

The antients were acquainted with this fiſh; and *Oppian* gives a long and entertaining account of its capture. Their fleſh is ſometimes eaten, but is eſteemed both coarſe and rank.

* *Omnia autem carnivora ſunt talia et ſupina veſcantur. Lib.* IX. *c.* 24.

Γλαυκ⊙. *Ælian an. Lib.* I. c. 16.
Galeus glaucus. *Rondel.* 378. *Geſner piſc.* 609.
Blew ſhark *Wil. Ich.* 49. *Raii ſyn. piſc.* 20.
Squalus foſſula triangulari in extremo dorſo, foraminibus nullis ad oculos. *Arted. ſyn.* 98.
Squalus glaucus. *Lin. ſyſt.* 401.

43. BLUE.

ÆLIAN relates ſtrange things of the affection this ſpecies bears to its young: among others, he ſays, that it will permit the ſmall brood, when in danger, to ſwim down its mouth, and take ſhelter in its belly. This fact has been ſince confirmed by the obſervation of one of our beſt ichthyologiſts *, and is no more incredible, than that the young of the *Opoſſum* ſhould ſeek an aſylum in the ventral pouch of its parent, a fact too well known to be conteſted. But this degree of care is not peculiar to the blue ſhark, but we believe common to the whole genus.

This ſpecies frequents many of our coaſts, but particularly thoſe of *Cornwall* during the pilchard ſeaſon, and is at that time taken with great iron hooks made on purpoſe.

DESCRIP. It is of an oblong form: the noſe extends far beyond the mouth: it wants the orifices behind the eyes, which are uſual in this genus: the noſtrils are long, and placely tranſverſely. *Artedi* remarks a triangular dent in the lower part of the back.

* *Rondeletius*, 388.

The

The ſkin is ſmoother than that of other ſharks: the back is of a fine blue color; the belly of a ſilvery white.

Linnæus ſays, that its teeth are granulated; for our part we muſt confeſs it is a fiſh that has not come under our examination, therefore hope to be favored with an accurate deſcription from ſome naturaliſt, who lives on the coaſt it haunts.

We may add, that *Rondeletius* ſays he was an eye-witneſs to its fondneſs for human fleſh: that theſe fiſh are leſs deſtructive in our ſeas, is owing to the coolneſs of the climate, which is well known to abate the fierceneſs of ſome, as well as the venom of other animals.

44. LONG-TAILED.

Αλωπεξ? *Ariſt. Hiſt. an. Lib.* IX. *c.* 37. *Ælian Var. Hiſt. Lib.* I. *c.* 5.
Oppian Halieut. I. 381. III. 144.
Vulpes *Plinii Lib.* IX. *c.* 43.
Singe de mer. *Belon*, 88.
Vulpes marina. *Rondel.* 337. *Geſner piſc.* 1045.
Cercus *Caii opuſc.* 110.
Sea Fox, or Ape. *Wil. Ichth.* 54. *Raii ſyn. piſc.* 20.
Squalus cauda longiore quam ipſum corpus. *Arted. ſyn.* 96.
Sea Fox. Threſher. *Borlaſe Cornwall.* 265.

TAIL.

THIS fiſh is moſt remarkable for the great length of the tail: the whole meaſure of that we had an opportunity of examining, was thirteen feet, of which the tail alone was more than ſix, the

XIV.

LONG TAILED SHARK.

Nº 44.

D. Mazell fec.

Edwards del.

the upper lobe extending greatly beyond the lower, almoſt in a ſtrait line.

The body was round and ſhort: the noſe ſhort but ſharp pointed: the eyes large, and placed immediately over the corners of the mouth, which was ſmall, and not very diſtant from the end of the noſe.

The teeth are triangular, and ſmall for the ſize of the fiſh, and placed in three rows.

The back aſh color: the belly white: the ſkin univerſally ſmooth.

The antients ſtyled this fiſh Αλωπεξ, and *Vulpes*, from its ſuppoſed cunning. They believed, that when it had the misfortune to have taken a bait, it ſwallowed the hook till it got at the cord, which it bit off, and ſo eſcaped.

They are ſometimes taken in our ſeas, and have been imagined to be the fiſh called the *Threſher*, from its attacking and beating the *Grampus* with its long tail, whenever that ſpecies of whale riſes to the ſurface to breathe.

45. TOPE.

Κυων? *Ariſt. Hiſt. an. Lib.* VI. *c.* 11.
Canicula? *Plinii Lib.* IX. *c.* 46.
Le chien de mer, ou Canicule. *Belon*, 65.
Canis galeus. *Rondel.* 377. *Geſner piſc.* 167.
The Tope. *Wil. Ich.* 51. *Raii ſyn. piſc.* 20.
Squalus naribus ori vicinis; foraminibus exiguis ad oculos. *Arted. ſynon.* 97.
Squalus galeus. *Lin. ſyſt.* 399. *Gronov. Zooph.* No. 142.

SIZE.

ONE that was taken on our coaſt the laſt year weighed twenty ſeven pounds, and its length was

was five feet; but they grow to a greater ſize, ſome, according to *Artedius*, weighing an hundred pounds.

The color of the upper part of the body and fins was a light cinereous; the belly white.

The noſe was very long, flat, and ſharp pointed; beyond the noſtrils ſemitranſparent. The noſtrils were placed very near the mouth.

Behind each eye was a ſmall orifice. The teeth were numerous, diſpoſed in three rows, ſmall, very ſharp, triangular, and ſerrated on their inner edge.

The firſt back fin was placed about eighteen inches from the head; the other very near the tail.

The tail finned beneath, the upper part ended in a ſharp angle.

This ſpecies is ſaid by *Rondeletius* to be very fierce and voracious, even to purſue its prey to the edge of the ſhore.

Its ſkin and fleſh has an offenſive rank ſmell; therefore we ſuppoſe Mr. *Dale* gave it ironically the title of *Sweet William* *.

* *Hiſt. Harwich*, 420.

Neſpus

Νεβριας, Σκύλιος, Ασεριας ? *Ariſt. Hiſt. an. Lib.* V. *c.* 10. VI. *c.* 10, 11.
Ποικιλος? *Oppian Halieut.* I. 381.
La Rouſſete commune. *Belon*, 65.
Canicula *Ariſtotelis. Rondel.* 380. *Geſner piſc.* 168.
Catulus major vulgaris. *Wil. Ich.* 62.
Greater Cat Fiſh: the Bounce. *Raii ſyn. piſc.* 22.
Squalus ex rufo varius, pinna ani medio inter anum et caudem pinnatum. *Arted. ſyn.* 97.
Squalus canicula. *Lin. ſyſt.* 399. *Gronov. Zooph.* No. 145.
Greater Cat fiſh. *Edw.* 289.

46. SPOTTED.

THIS ſpecies being remarkably ſpotted, may be the ſame known to antients by the names expreſſed in the ſynonyms; but they ſo frequently leave ſuch ſlight notices of the animals they mention, that we are often obliged to add a doubtful mark (?) to numbers of them.

DESCRIP.

The weight of one we took was ſix pounds three ounces, and yet it meaſured three feet eight inches in length; ſo light are the cartilaginous fiſh in reſpect to their ſize.

The noſe was ſhort, and very blunt, not extending above an inch and an half beyond the mouth. The noſtrils were large, placed near the mouth, and covered with a large angular flap: the head very flat.

The eyes were oblong, behind each a large orifice opening to the inſide of the mouth.

The teeth ſmall, ſharp, ſmooth at their ſides, ſtrait, and diſpoſed in four rows.

Both the back fins were placed much behind, and nearer the tail than in common.

The tail was finned, and below extended into a ſharp angle.

The color of the whole upper part of the body, and the fins, was brown, marked with numbers of large diſtinct black ſpots: ſome parts of the ſkin were tinged with red; the belly was white.

The whole was moſt remarkably round, and had a ſtrong ſmell.

The tendrils that iſſue from each end of the purſe of this fiſh, are much more delicate and ſlender than thoſe of any other; are as fine as *Indian* graſs, and very much reſemble it.

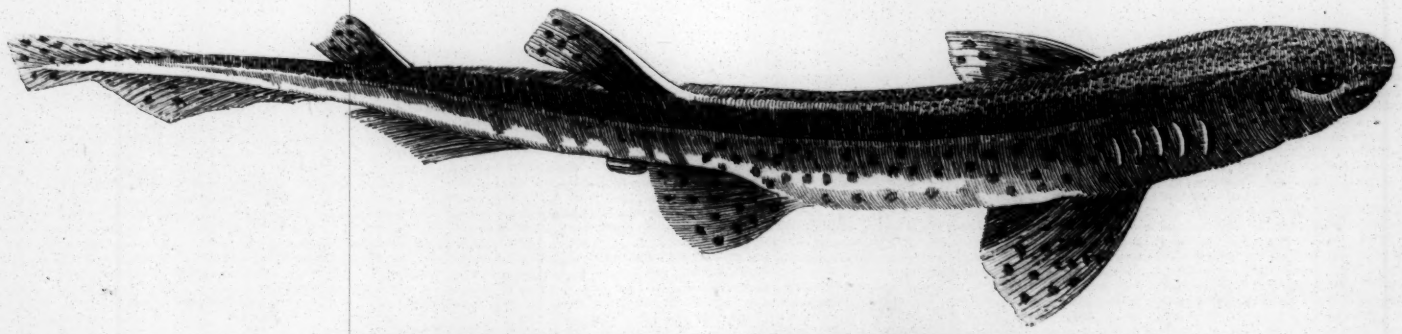
The female of this ſpecies, and we believe of other ſharks, is greatly ſuperior in ſize to the male; ſo that in this reſpect there is an agreement between the fiſh and the birds of prey *. They bring about nineteen young at a time: the fiſhermen believe that they breed at all times of the year, as they ſcarce ever take any but what are with young.

To this kind may be added, as a meer variety, the

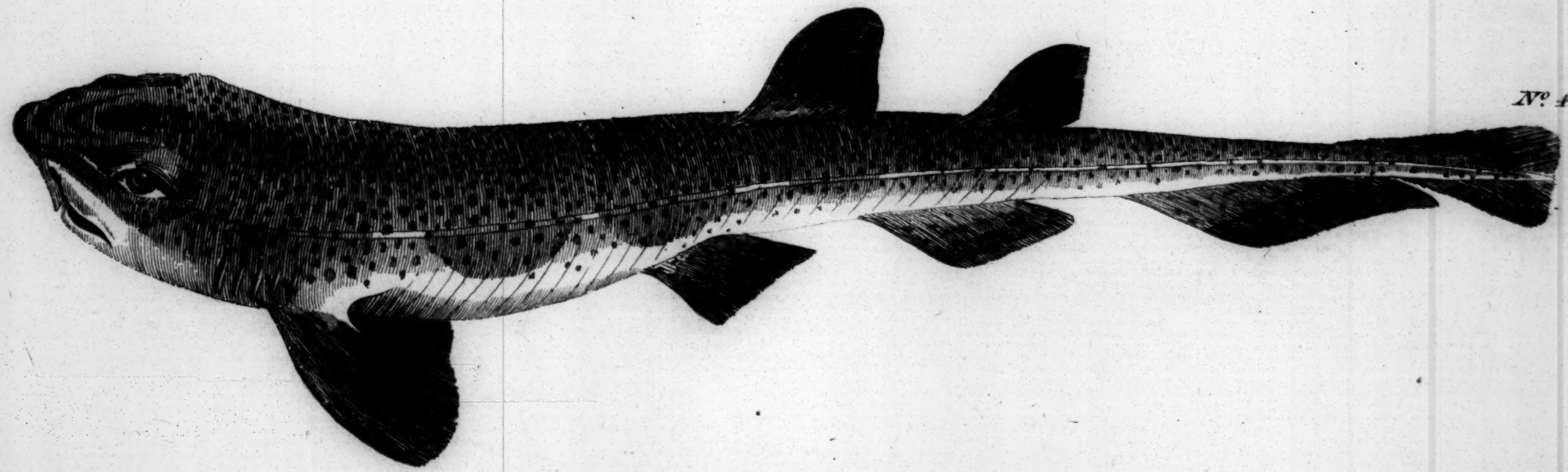
Catulus maximus. *Wil. Ich.* 63. *Raii ſyn. piſc.* 22.
Squalus cinereus, pinnis ventralibus diſcretis. *Arted. ſyn.* 97.
Squalus ſtellaris. *Lin. ſyſt.* 399.
No. 145. *Gronov. Zooph.*

* Vide *Britiſh Zoology, Vol.* I. 130.

The



GREATER & LESSER SPOTTED SHARKS.



Nº 46.

The chief difference ſeeming to be in the color and the ſize of the ſpots; the former being grey, the latter fewer but larger than in the other.

Le muſcarol? *Belon*, 64.
Catulus minor. *Wil. Icth.* 64.
Leſſer Rough Hound, or Morgay *Raii ſyn. piſc.* 22.
Squalus dorſo vario, pinnis ventralibus concretis. *Arted. ſynon.* 97.
Squalus catulus. *Lin. ſyſt.* 400. *Gronov. Zooph.* No. 144.

47. LESSER SPOTTED.

THE weight of one that was brought to us by a fiſherman was only one pound twelve ounces; the length two feet two inches: it is of a ſlender make in all parts.

The head was flat: the noſtrils covered with a long flap: the noſe blunt, and marked beneath with numerous ſmall punctures: behind each eye was a ſmall orifice: the back fins, like thoſe of the former, placed far behind.

The ventral fins are united, forming as if it were but one, which is a ſure mark of this ſpecies.

The tail finned like that of the greater dog fiſh.

The color is cinereous, ſtreaked in ſome parts with red, and generally marked with numbers of ſmall black ſpots; but we have obſerved in ſome that they are very faint and obſcure.

The belly is white.

This ſpecies breeds from nine to thirteen young

at a time, is very numerous on ſome of our coaſts, and very injurious to the fiſheries.

48. SMOOTH. Γαλεος λειος? *Ariſt. Hiſt. an. Lib.* VI. *c.* 10. *Oppian, Lib.* I. 380.
Galeus lævis. *Rondel.* 375. *Geſner piſc.* 608.
Muſtelus lævis primus. *Wil. Ichth.* 60.
Smooth or unprickly hound. *Raii ſyn. piſc.* 22.
Squalus dentibus obtuſis ſeu granuloſis. *Arted. ſyn.* 93.
Squalus muſtelus. *Lin. ſyſt.* 400. *Gronov. Zooph.* No. 142.

THIS ſpecies is called ſmooth, not that the ſkin is really ſo, but becauſe it wants the ſpines on the back, which are the character of the ſecond ſpecies, the Picked Dog.

The noſe extends far beyond the mouth, and the end blunt: the holes behind the eyes are ſmall; the back is leſs flat than that of others of this genus.

The firſt back fin is placed midway above the pectoral and ventral fins: the pectoral fins are ſmall.

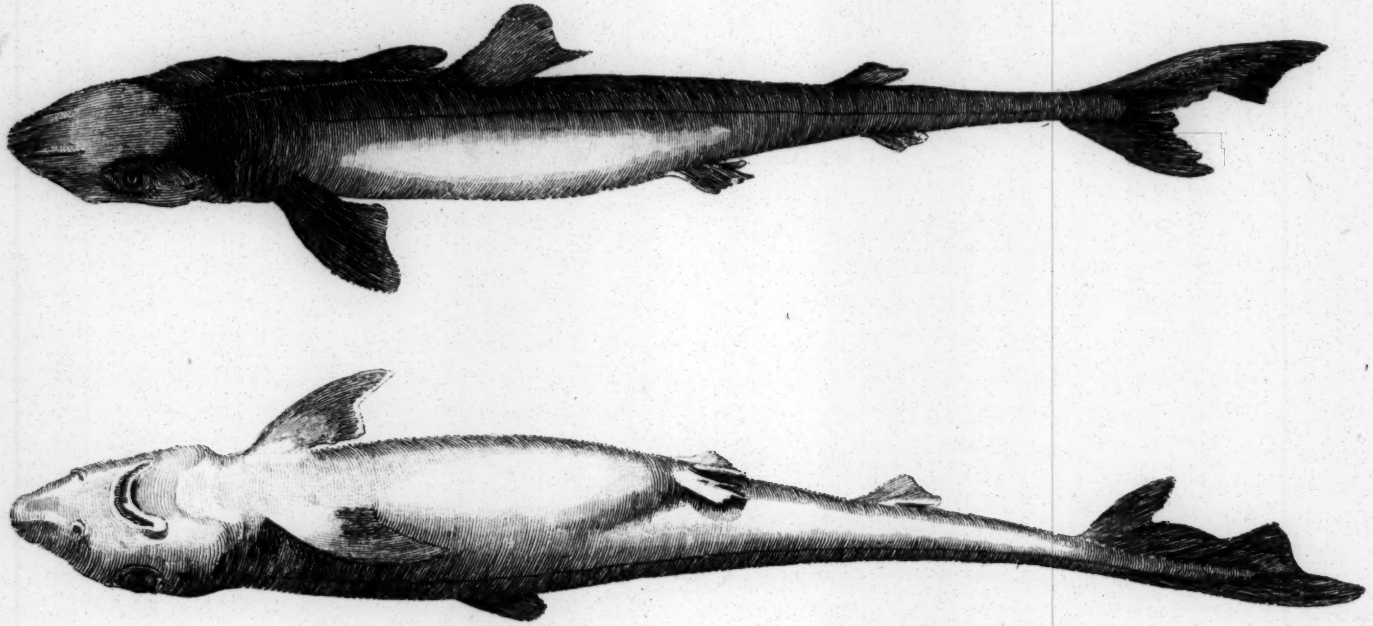
The tail forked, but the upper part is much the longeſt.

The teeth reſemble thoſe of a Ray, rough and ſharp.

The color of the back and ſides aſh, and free from ſpots; the belly ſilvery.

The

SMOOTH SHARK.



The Porbeagle. *Borlaſe Cornwall*, 265. *Tab.* 26. 49. PORBEAGLE.

THE figure of this fiſh, engraved after a drawing by the Rev. Mr. *Jago* *, is preſerved in Doctor *Borlaſe*'s Natural Hiſtory of *Cornwall*.

As it is not attended with any account farther than that it is a *Corniſh* fiſh, and a ſmall ſpecies of ſhark, we are obliged to form the beſt deſcription we can from the print.

The noſe appears to be very long, ſlender towards the end, and ſharp pointed. The mouth placed far beneath; the body very thick and deep, but extremely ſlender juſt at the ſetting on of the tail.

The firſt back fin is placed almoſt in the middle, the other pretty near the tail.

The belly very deep: the ventral and anal fins ſmall.

The tail bifurcated; the upper fork a little longer than the lower.

* This gentleman was miniſter of *Loo*, in *Cornwall*, and appears to have been well acquainted with the Hiſtory of Fiſh. He communicated figures of ſeveral of the *Corniſh* fiſh, with a brief account of each to *Petiver*, at whoſe inſtance, as Doctor *Derham* tells us, in the preface to Mr. *Ray*'s Itineraries, p. 69, he added them to the Synopſis *Avium et Piſcium*, p. 162. A few others of his drawings are alſo preſerved in the Natural Hiſtory of *Cornwall*, and ſeem to be executed with ſkill and accuracy.

50. BEAUMARIS.

THIS ſpecies was obſerved by my friend the Rev. Mr. *Hugh Davies* of *Beaumaris*, who favored me with the deſcription, and an accurate drawing made from the fiſh taken in a neighboring wear.

The length was ſeven feet. The ſnout and body of a cylindrical form. The greateſt circumference four feet eight inches.

The noſe blunt. The noſtrils ſmall. The mouth armed with three rows of ſlender teeth *, flatted on each ſide, very ſharp, and furniſhed at the baſe with two ſharp proceſſes. The teeth are fixed to the jaws by certain muſcles, and are liable to be raiſed or depreſſed at pleaſure.

The firſt dorſal fin was two feet eight inches diſtant from the ſnout, of a triangular form: the ſecond very ſmall, and placed near the tail.

The pectoral fins ſtrong and large: the ventral and anal ſmall.

The ſpace between the ſecond dorſal fin and the tail much depreſſed; the ſides forming an acute angle. Above and below was a tranſverſe foſſule or dent.

The tail was in the form of a creſcent, but the

* Theſe teeth are often found foſſil, and are ſtyled by *Lluyd Ornithogloſſum*, from their reſemblance to a bird's tongue.

horns

No. 60.

BEAUMARIS SHARK.

horns of unequal lengths: the upper one foot ten inches; the lower one foot one.

The whole fiſh was a lead color. The ſkin comparatively ſmooth, being far leſs rough than that of the leſſer ſpecies of this genus.

VII. ANGLER.

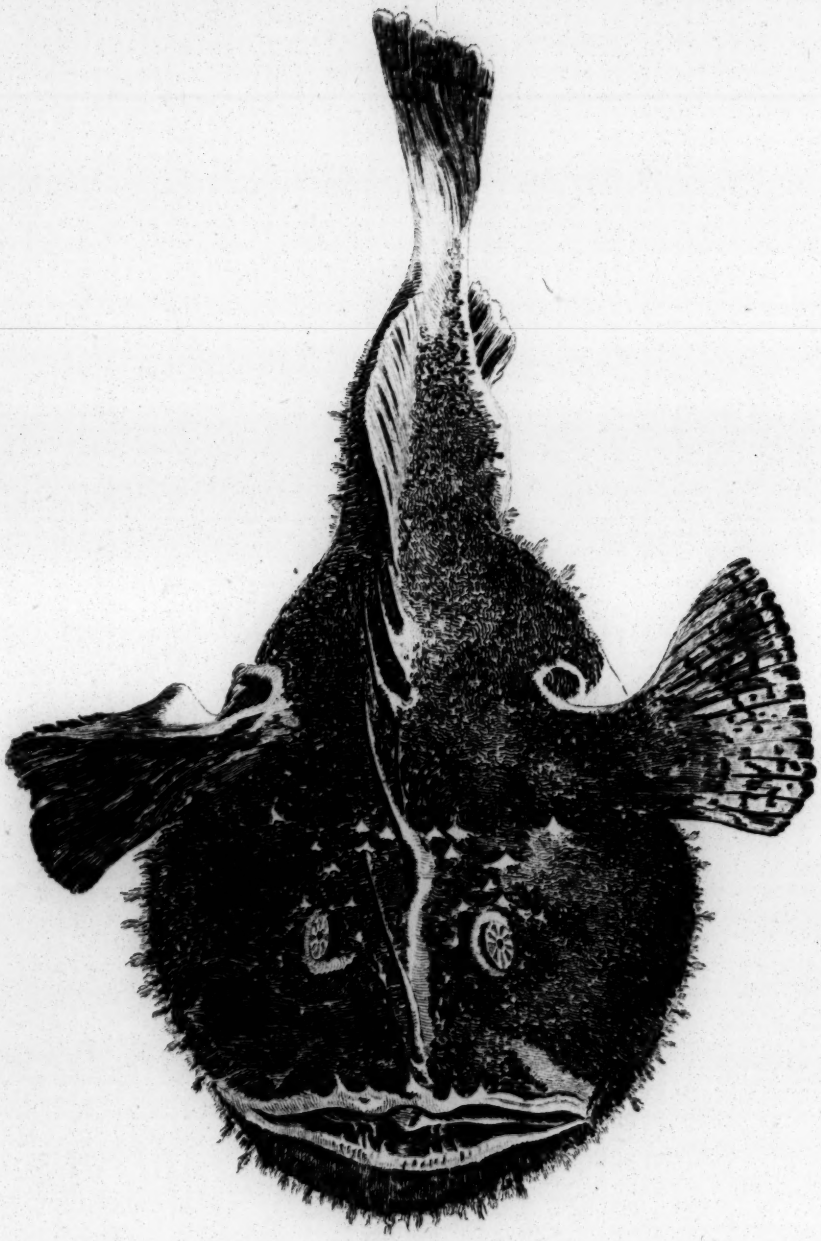
One aperture behind each ventral fin.
Large, flat, and circular head and body.
Teeth numerous and ſmall in the jaws, roof of the mouth, and on the tongue.
Pectoral fins broad and thick.

51. COMMON.

Βατραχος. *Ariſt. Hiſt. an. Lib.* IV. *c.* 37. *Oppian Halieut.* II. 86.
Rana piſcatrix. *Ovid. Halieut.* 126. *Plinii Lib.* IX. *c.* 24.
La Grenouille de mer, ou peſcheuſe. Le Diable de mer, Bauldroy & Peſcheteau *Belon*, 77.
Rana piſcatrix. *Rondel.* 363. *Geſner piſc.* 813.
Seheganſs, ſeheteuffel, ſehetode. *Schonevelde*, 59.
Toad-fiſh, Frog-fiſh, or Sea-Devil. *Wil. Ich.* 85. *Raii ſyn. piſc.* 29.
Lophius ore cirroſo. *Arted. ſyn.* 87.
Lophius piſcatorius. *Lin. ſyſt.* 402.
L. p. depreſſus capite rotundato. *Faun. Suec.* No. 298. *Gronov. Zooph.* No. 207.

NAME.

THIS ſingular fiſh was known to the antients by the name of Βατραχος, and *Rana*, and to us by that of the fiſhing frog, for it is of a figure reſembling that animal in a tadpole ſtate. *Pliny* takes notice of the artifice uſed by it to take its prey: *Eminentia ſub oculis cornicula turbato limo exerit, aſſultantes piſciculos attrahens, donec tam prope accedant, ut aſſiliat.* "It puts forth the "ſlender horns it has beneath its eyes, enticing "by that means the little fiſh to play round, till "they



COMMON ANGLER.

Wat. Williams Del

R. Mazell fe.

" they come within reach, when it ſprings on them *."

DESCRIP. The fiſhing frog grows to a large ſize, ſome being between four and five feet in length; and we have heard of one taken near *Scarborough*, whoſe mouth was a yard wide. The fiſhermen on that coaſt have a great regard for this fiſh, from a ſuppoſition that it is a great enemy to the dog fiſh †, and whenever they take it with their lines ſet it at liberty.

It is a fiſh of very great deformity: the head is much bigger than the whole body, is round at the circumference, and flat above: the mouth of a prodigious wideneſs.

The under jaw is much longer than the upper: the jaws are full of ſlender ſharp teeth: in the roof of the mouth are two or three rows of the ſame: at the root of the tongue, oppoſite each other, are two bones of an elliptical form, thick ſet, with very ſtrong ſharp teeth.

The noſtrils do not appear externally, but in the upper part of the mouth are two large orifices that ſerve inſtead of them.

* *Cicero*, in his ſecond book *De Natura Deorum*, gives much the ſame account of this fiſh: *Ranæ autem marinæ dicuntur obruere ſeſe arena ſolere, et moveri propè aquam, ad quas, quaſi ad eſcam, piſces cum acceſſerint, confici a ranis, atque conſumi.*

† The bodies of theſe fierce and voracious fiſh are often found in the ſtomach of the *Fiſhing Frog*.

On

On each ſide the upper jaw are two ſharp ſpines, and others are ſcattered about the upper part of the head.

Immediately above the noſe are two long tough filaments, and on the back three others; theſe are what *Pliny* calls *cornicula*, and ſays it makes uſe of to attract the little fiſh. They ſeem to me like lines flung out for that end: I therefore have changed the old name of FISHING FROG for the more ſimple one of ANGLER.

Along the edges of the head and body are a multitude of ſhort fringed ſkins, placed at equal diſtances.

The ventral fins are broad, thick, and fleſhy, are jointed like arms, and within ſide divided into fingers.

The aperture to the gills is placed behind, each of theſe is very wide, ſo that ſome writers have imagined it to be a receptacle for the young in time of danger.

The back fin is placed very low near the beginning of the tail: the anal fin is placed beneath, almoſt oppoſite the former.

The body grows ſlender near the tail, the end of which is quite even.

The color of the upper part of this fiſh is duſky, the lower part white; the ſkin ſmooth.

Fiſhing Frog of Mount's-Bay. *Borlaſe Cornwall*, 266. *Tab.* 27. *fig.* 6. *Phil. Tranſ. Vol.* LIII. 170. LONG. 52.

THIS is a ſpecies at preſent unknown to us, except by deſcription.

It is, ſays Doctor *Borlaſe*, of a longer form than the common kind: the head more bony, rough, and aculeated. It had no finlike appendages round the head, but on each ſide the thinner part of the body, beginning beneath the dorſal fin, and reaching within two inches of the tail, was a ſeries of them, each three quarters of an inch in length.

At the end of the pectoral fins were ſpines an inch and three quarters in length; at the end of the tail others three quarters of an inch long.

One

VIII. STURGEON.

One narrow aperture on each ſide.
The mouth placed far below, tubular and without teeth.
The body long, and often angular.

53. STURGEON.

Ονισκος. *Athen. Lib.* VIII. 315. Ἀκιπησιος? *Athen. p.* 294.
Acipenſer? *Plinii Lib.* IX. *c.* 17. *Ovidii Halieut.?*
L'Eſturgeon. *Belon*, 89.
Acipenſer. *Rondel.* 410. *Geſner piſc.* 2.
Sturio. *Geſner piſc.*
Stoer. *Schonevelde*, 9.
Sturgeon. *Wil. Ich.* 239. *Raii ſyn. piſc.* 112.
Schirk. *Kram.* 383.
Acipenſer corpore tuberculis ſpinoſis exaſperato. *Arted. ſyn.* 91.
Acipenſer ſturio. *Lin. ſyſt.* 403. *Muſ. Ad. Fred.* 54. *Tab.* 18. *fig.* 2.
Stor. *Faun. Suec.* No. 299.
Seb. Muſ. III. 101. *Tab.* 29. No. 19.

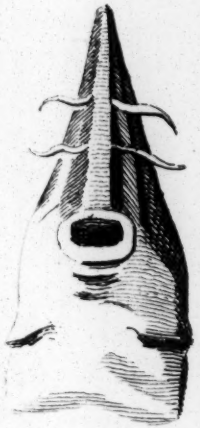
THAT this is the Ονισκος of *Dorion*, as quoted by *Athenæus*, is very probable, as well from the account he gives of its form, as of its nature. He ſays its mouth is always open, with which it agrees with the Sturgeon, and that it conceals itſelf in the hot months: this ſhews it to be a fiſh of a cold nature, which is confirmed by the hiſtory of the *European* fiſh of this ſpecies, given by Mr. *Forſter* *, in his Eſſay on the *Volga*, who relates that they are ſcarce ever found in that river

* *Phil. Tranſ.* LVII. 352.

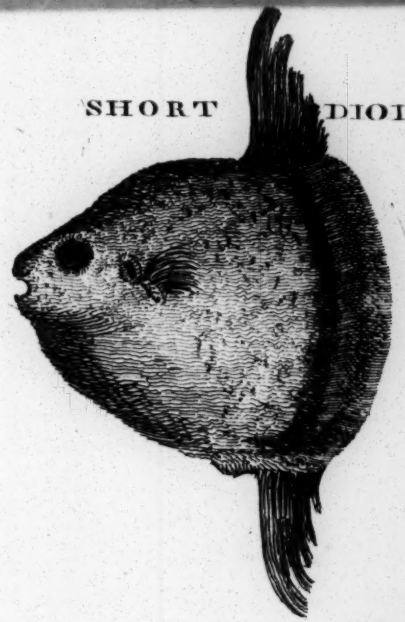
in

OBLONG DIODON.



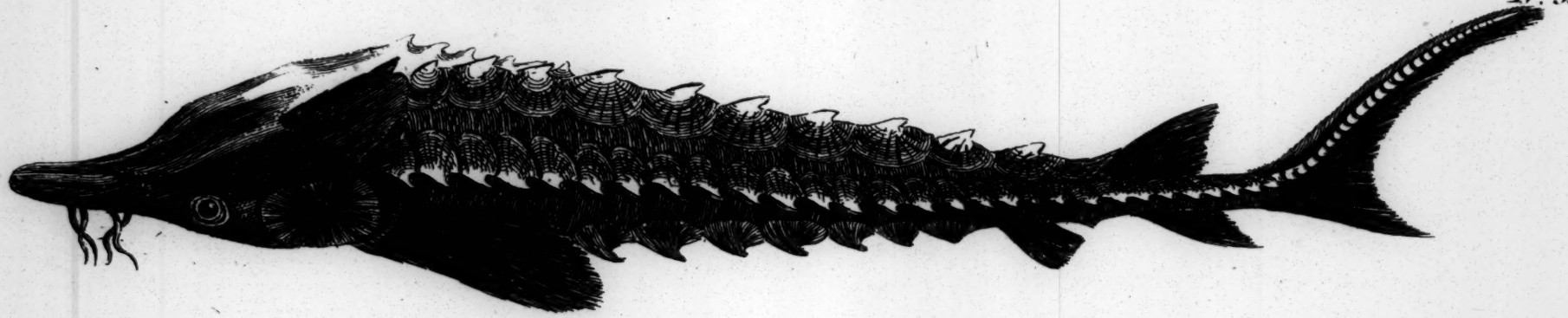


SHORT DIODON.



STURGEON.

№. 53.



in ſpring or ſummer, but in vaſt quantities in autumn and winter, when they crowd from the ſea under the ice, and are then taken in great numbers.

Whether the *acipenſer* is the ſturgeon of the moderns, may be doubted, otherwiſe *Ovid* would never have ſpoke of it as a foreign fiſh:

Tuque peregrinis, Acipenſer, nobilis undis.
And, thou, a fiſh in foreign ſeas renowned.

It being well known that it is not uncommon in the *Mediterranean*, and even in the mouth of the *Tiber*, at certain ſeaſons; but this paſſage leaves us as much in the dark as to the particular ſpecies intended, by the word *acipenſer*, as the deſcription *Pliny* has given us; for that philoſopher relates, that its ſcales are placed in a contrary direction to thoſe of other fiſh, being turned towards the mouth, which diſagrees with the character of all that are known at preſent. Whatever fiſh it might be, it was certainly the ſame with the *Elops*, or *Helops*, as appears from *Pliny*, who makes it ſynonimous with the *acipenſer* *, and from another line of the poet beforementioned:

Et pretioſus Helops noſtris incognitus undis.
The pretious *Helops* ſtranger to our ſeas.

The ſturgeon annually aſcends our rivers, but in no great numbers, and is taken by accident in the

MIGRATORY.

* Quidam eum *Elopem* vocant. *Lib.* IX. *c.* 17.

ſalmon

ſalmon nets. It ſeems a ſpiritleſs fiſh, making no manner of reſiſtance when entangled, but is drawn out of the water like a lifeleſs lump. It is a fiſh that is ſeldom taken far out at ſea, but frequents ſuch parts as are not remote from the æſtuaries of great rivers. It is admired for the delicacy and firmneſs of its fleſh, which is white as veal, and extremely good when roaſted. It is generally pickled. The moſt we receive comes either from the *Baltic* rivers, or *North America:* thoſe cured at *Pillau* have been, till of late, in the greateſt repute; but through the encouragement given by the ſociety inſtituted for promoting trade and manufactures, the ſturgeon from our colonies begins to rival thoſe of the *Baltic.*

Great numbers are taken during ſummer in the lakes *Friſchehaff*, and *Curiſch-haff* near *Pillau*, in large nets made of ſmall cord. The adjacent ſhores are formed into diſtricts, and farmed out to companies of fiſhermen, ſome of which are rented for ſix thouſand guilders, or near three hundred pounds *per annum.*

They are found in vaſt abundance in the *American* rivers in *May*, *June*, and *July*, at which time they leap ſome yards out of the water, and falling on their ſides, make a noiſe to be heard in ſtill weather at ſome miles diſtance *.

Caviare is made of the roes of this, and alſo of

* *Cateſby Carol. App.* 33.

all the other ſorts of ſturgeons, dried, ſalted, and packed up cloſe. The beſt is ſaid to be made of thoſe of the *Sterlet* *, a ſmall ſpecies frequent in the *Taik* and *Volga*. *Icthyocolla* †, or iſing-glaſs, is alſo made of the *ſound* of our fiſh, as well as that of the others, but the *Beluga* affords the beſt ‡.

The ſturgeon grows to a great ſize, to the length of eighteen feet, and to the weight of five hundred pounds, but it is ſeldom taken in our rivers of that bulk. The largeſt we have known caught in thoſe of *Great Britain* weighed four hundred and ſixty pounds, which was taken about two years ago in the *Eſk*, where they are more frequently found than in our ſouthern waters. DESCRIP.

* *Strahlenberg's Hiſt. Ruſſia*, 337.

† *Phil. Tranſ.* LVII. 354. A very ſmall quantity is made from this ſpecies, and that only deſigned as preſents to great men, as Mr. *Forſter* aſſured me.

‡ The antients were acquainted with the fiſh that afforded this drug. *Pliny lib.* XXXII. *c.* 7. mentions it under the name of *Icthyocolla*, and ſays, that the glue that was produced from it had the ſame title; and afterwards adds, that it was made out of the belly of the fiſh. The *Mario*, ſaid by *Pliny* lib. IX. *c.* 15. to be found in the *Danube* and the *Boryſthenes*, was certainly of this genus, a cartilaginous fiſh *(nullis oſſibus aliiſve interſitis)* reſembling a ſmall porpeſſe *(Porculo marino ſimillimus;)* and very probably may be the ſame with the *Beluga*, which, according to Mr. *Forſter*, *Phil. Tranſ.* LVII. 354. has a ſhort blunt noſe, agreeing in that reſpect with the porpeſſe.

The

The noſe is very long, ſlender, and ends in a point. The eyes are extremely ſmall; the noſtrils placed near them: on the lower part of the noſe are four cirri or beards: the mouth is ſituated far beneath, is ſmall, and unſupported by any jaw bones; neither has it any teeth. The mouth of a dead fiſh is always open. When alive it can cloſe or open it at pleaſure, by means of certain muſcles.

The body is long, pentagonal, and covered with five rows of large bony tubercles: one row of which is placed on the back, and two on each ſide. The whole under ſide of the fiſh, from the end of the noſe to the vent, is flat; on the back, not remote from the tail, is a ſingle fin. It has beſides two pectoral fins, two ventral, and one anal fin. The tail is bifurcated, but the upper part much longer than the lower.

The upper part of the body is of a dirty olive color; the lower part ſilvery; the middle of the tubercles white.

In the manner of breeding it is an exception among the cartilaginous fiſh, being like the bony fiſh oviparous, ſpawning in winter.

A very deep body, and as if cut off in the middle. IX. DIODON.
Mouth ſmall.
Two teeth only in each jaw.

Sun-Fiſh from Mount's-Bay. *Borlaſe Cornwall*, 268. *tab.* 26. *fig.* 7. Oſtracion lævis. *Zooph.* No. 185. *Gronov.* 54. OBLONG.

RONDELETIUS has given this genus the ſynonym of *Orthragoriſcus*, as if it was that which *Pliny* * intended by the ſame name; but the account left us by that naturaliſt is ſo brief, that we do not think ourſelves authorized to place it as a ſynonymous creature. He ſays no more than that it was the greateſt of fiſh, and that it grunted when it was firſt taken, from which probably roſe the name, for according to *Athenæus*, ὀρθραγορισκος † was that given to a young pig. We are inclined to believe, that this fiſh had eſcaped the notice of *Pliny*, otherwiſe he muſt have unavoidably made ſome remark on its ſtriking figure.

This fiſh grows to a great bulk: that which was examined by *Salvianus* ‡ was above a hun- SIZE.

* *Lib.* XXXII. *c.* 2.
† *Lib.* IV. *p.* 140.
‡ *Hiſt. Piſc.* 155.

dred pounds in weight: and Doctor *Borlaſe* mentions another taken at *Plymouth* in 1734, that weighed five hundred.

DESCRIP. In form it reſembles a bream, or ſome deep fiſh cut off in the middle. The mouth is very ſmall, and contains in each jaw two broad teeth, with ſharp edges.

The eyes are little; before each is a ſmall ſemilunar aperture; the pectoral fins very ſmall, and placed behind them. The dorſal fin and the anal fin are high, and placed at the extremity of the body: the tail fin is narrow, and fills all the abrupt ſpace between thoſe two fins.

The color of the back is duſky, and dappled; the belly ſilvery: between the eyes and the pectoral fins are certain ſtreaks pointing downwards. The ſkin is free from ſcales.

When boiled, it has been obſerved to turn into a glutinous jelly, reſembling boiled ſtarch when cold, and ſerved the purpoſes of glue, on being tried on paper and leather. The meat of this fiſh is uncommonly rank: it feeds on ſhell-fiſh.

There ſeems to be no ſatisfactory reaſon for the old *Engliſh* name. Care muſt be taken not to confound it with the ſun-fiſh of the *Iriſh*, which differs in all reſpects from this.

Orthragoriſcus ſive Luna piſcis. *Rondel.* 424.
Mola *Salviani*, the Sun-fiſh. *Wil. Icth.* 151. *Raii ſyn. piſc.* 51.
Oſtracion cathetoplateus ſubrotundus inermis aſper, pinnis pectoralibus horizontalibus, foraminibus quatuor in capite. *Arted. ſynon.* 83.
Tetraodon mola. T. lævis, compreſſus, cauda truncata, pinna breviſſima dorſali analique annexa. *Lin. ſyſt.* 412. *Gronov. Zooph.* No. 186.
Brunnich piſc. Maſſil. No. 16.
Sun-fiſh, from Loo. *Borlaſe Cornwall*, 267. *tab.* 26. *fig.* 6.

55. SHORT.

THIS differs from the former, in being much ſhorter and deeper. The back and the anal fins are higher, and the aperture to the gills not ſemilunar, but oval. The ſituation of the fins are the ſame in both.

This ſpecies was taken off *Penzance*, and is engraved in Doctor *Borlaſe*'s Natural Hiſtory of *Cornwall*, from one of Mr. *Jago*'s drawings. Both kinds are taken on the weſtern coaſts of this kingdom, but in much greater numbers in the warmer parts of *Europe*.

Mr. *Brunnich* informs us, that between *Antibes* and *Genoa*, he ſaw one of this ſpecies lie aſleep on the ſurface of the water: a ſailor jumped overboard and caught it.

56. GLOBE. Tetraodon lævigatus. *Lin. ſyſt.* 411.

THIS ſpecies is common to *Europe* and *South Carolina*. As yet only a ſingle ſpecimen has been diſcovered in our ſeas; taken at *Penzance* in *Cornwall*.

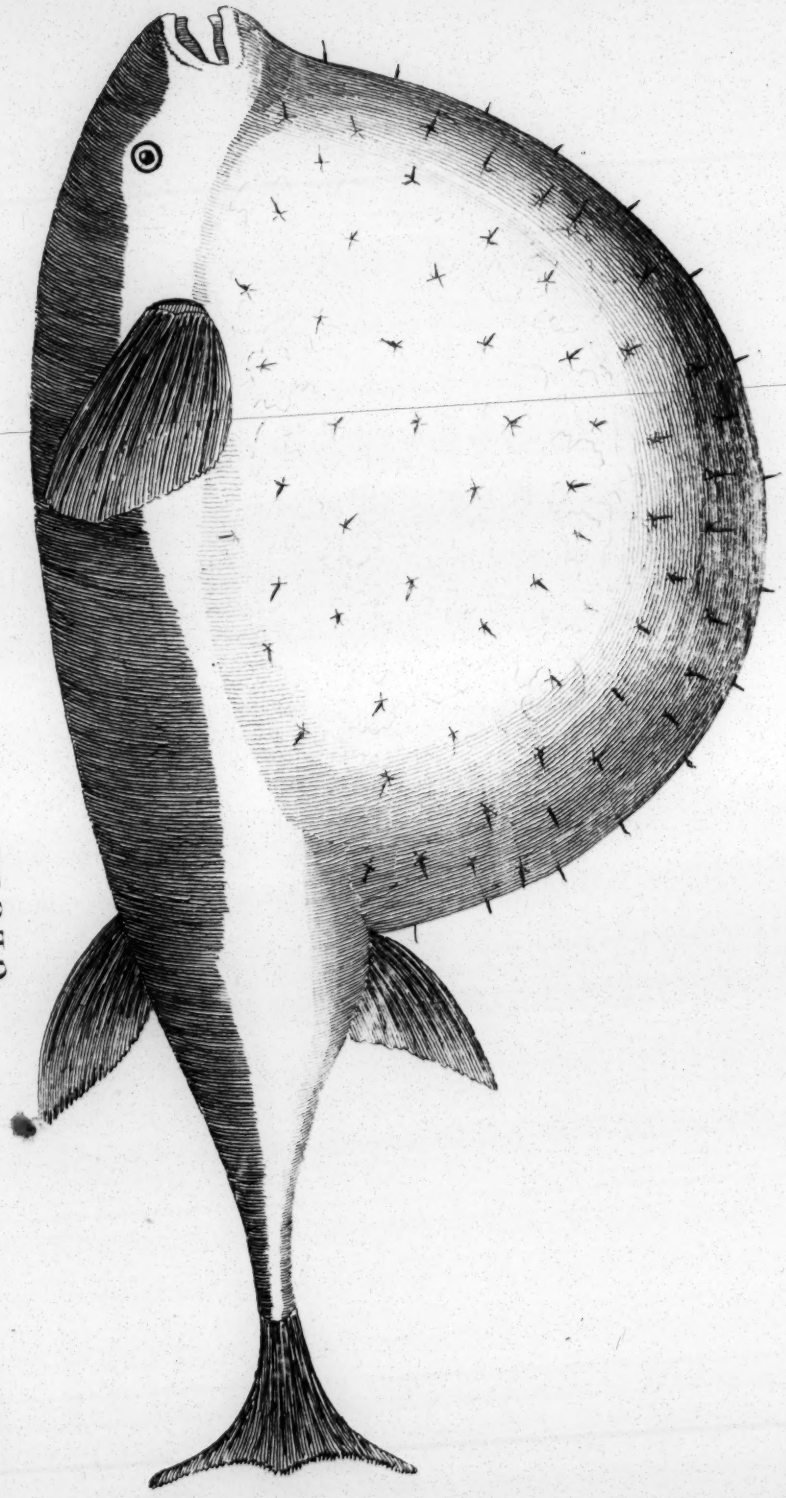
The length was one foot ſeven: the length of the belly, when diſtended, one foot; the whole circumference in that ſituation two feet ſix.

The form of the body is uſually oblong, but when alarmed it has the power of inflating the belly to a globular ſhape of great ſize. This ſeems deſigned as a means of defence againſt fiſh of prey: as they have leſs means of laying hold of it; and are beſides terrified by the numbers of ſpines with which that part is armed; and which are capable of being erected on every part.

The mouth is ſmall: the irides white, tinged with red: the back from head to tail almoſt ſtrait, or at leaſt very ſlightly elevated; of a rich deep blue color. It has the pectoral, but wants the ventral fins. The dorſal is placed low on the back; the anal is oppoſite: the tail almoſt even divided by an angular projection in the middle: tail and fins brown.

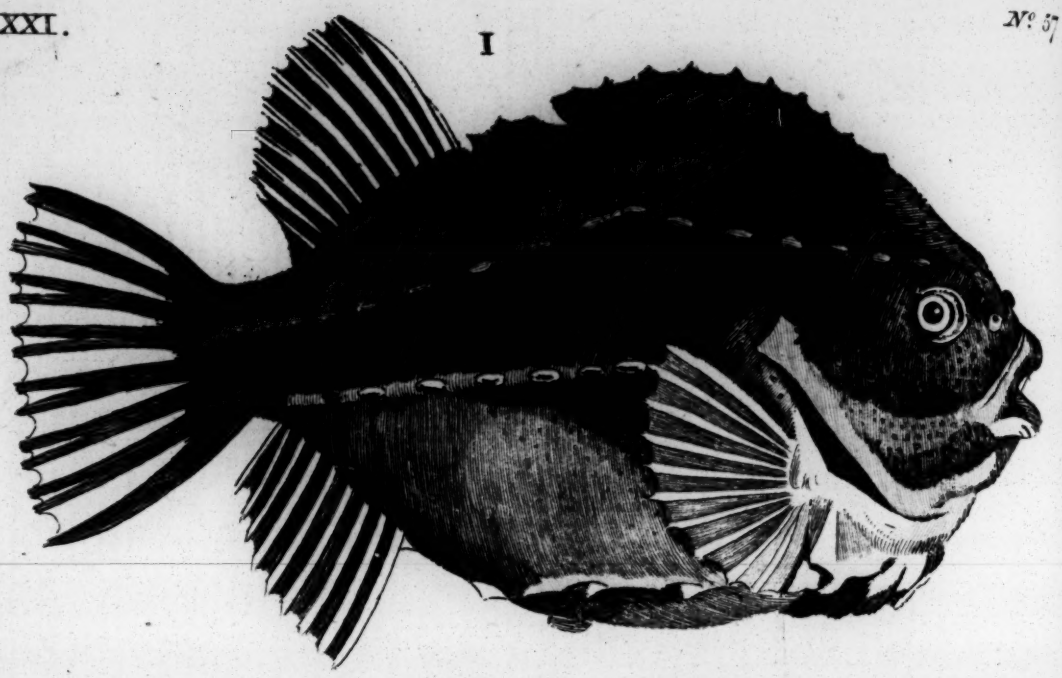
The belly and ſides are white, ſhagreened or wrinkled; and beſet with innumerable ſmall ſharp ſpines, adhering to the ſkin by four proceſſes.

Thick



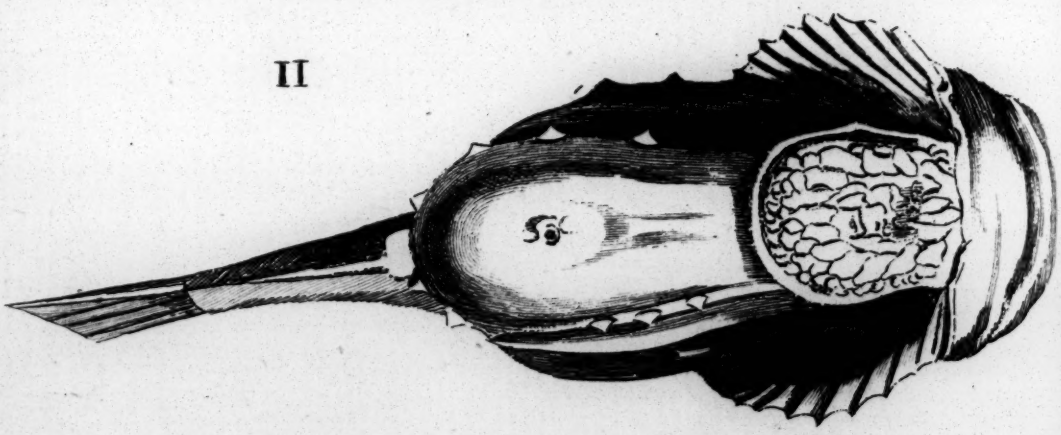
GLOBE DIODON.

I

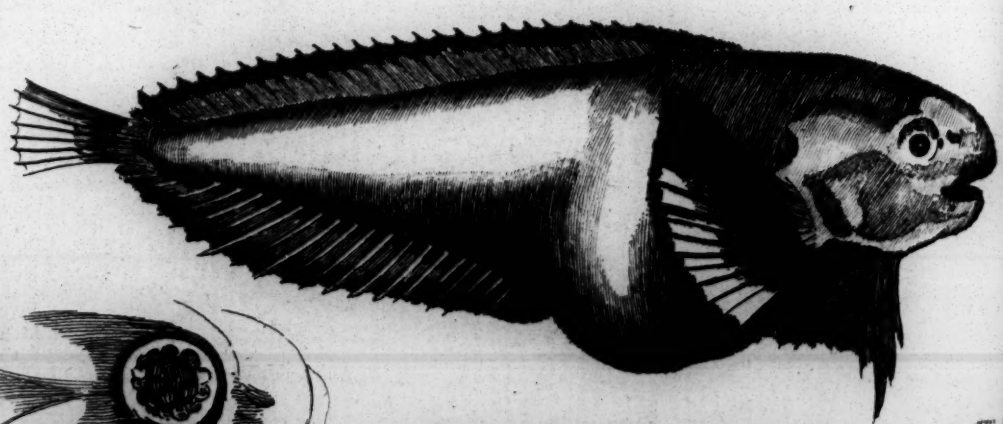


LUMP SUCKER.

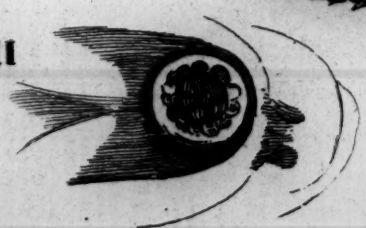
II



III



IIII



UNCTUOUS SUCKER.

X. SUCKER.

Thick body, arched back.
Ventral fins united.
Four branchioſtegous rays.

57. LUMP.

Lumpus anglorum. *Geſner Paralip.* 25.
Seehaeſs, Haſſpodde. *Schonevelde.* 41.
Lump, or Sea-Owl, *Scotis* Cock paddle. *Wil. Icth.* 208 *Raii ſyn. piſc.* 77.
Cyclopterus. *Arted. ſynon.* 87. *Gronov. Zooph.* No. 197.
Cyclopterus Lumpus. C. corpore ſquamis oſſeis angulato. *Lin. ſyſt.* 414.
Sjurygg-fiſk, Stenbit, Quabbſu. *Faun. Suec.* No. 320.

THIS ſingular fiſh encreaſes to the weight of ſeven pounds, and the length of nineteen inches: the ſhape of the body is like that of the bream, deep and very thick, and it ſwims edgeways. The back is ſharp and elevated, the belly flat.

DESCRIP.

The irides are of a cherry color; lips, mouth, and tongue, of a deeper red: the jaws lined with innumerable ſmall teeth; the tongue very thick; along the ridge of the back is a row of large bony tubercles; from above the eye to within a ſmall ſpace of the tail is another row; beneath that a third, commencing at the gills; and on each ſide the belly a fourth row, conſiſting of five tubercles like the other; the whole ſkin is rough, with ſmall tubercles.

On the upper part of the back is a thick ridge improperly called a fin, being deſtitute of ſpines; beneath that is the dorſal fin, of a browniſh hue, reaching within an inch of the tail: on the belly, juſt oppoſite, is another of the ſame form. The belly is of a bright crimſon color: the pectoral fins are large and broad, almoſt uniting at their baſe. Beneath theſe is the part by which it adheres to the rocks, &c. It conſiſts of an oval aperture, ſurrounded with a fleſhy muſcular and obtuſe ſoft ſubſtance, edged with ſmall threaded appendages, which concur as ſo many claſpers: tail and vent fins purple.

By means of this part it adheres with vaſt force to any thing it pleaſes. As a proof of its tenacity we have known, that on flinging a fiſh of this ſpecies juſt caught, into a pail of water, it fixed itſelf ſo firmly to the bottom, that on taking the fiſh by the tail, the whole pail by that means was lifted, though it held ſome gallons, and that without removing the fiſh from its hold.

Theſe fiſh reſort in multitudes during ſpring to the coaſt of *Sutherland*, near the *Ord* of *Caithneſs*. The ſeals which ſwarm beneath, prey greatly on them, leaving the ſkins; numbers of which thus emptied float at that ſeaſon aſhore. It is eaſy to diſtinguiſh the place where ſeals are devouring this or any unctuous fiſh, by a ſmoothneſs of the water immediately above the ſpot: this fact is now eſtabliſhed; it being a tried property of oil to

ſtill

ſtill the agitation of the waves, and render them ſmooth *.

Great numbers of theſe fiſh are found in the *Greenland* ſeas during the months of *April* and *May*, when they reſort near the ſhore to ſpawn. Their roe is remarkably large, which the *Greenlanders* boil to a pulp, and eat. They are extremely fat, which recommends them the more to the natives, who admire all oily food: they call them *Nipiſets*, or *Cat-fiſh*, and take quantities of them during the ſeaſon †.

This fiſh is ſometimes eaten in *England*, being ſtewed like carp, but is both flabby and inſipid.

58. UNCTUOUS.

Liparis? *Rondel.* 272. *Geſner piſc.* 483.
Liparis noſtras *Dunelm et Eborac.* Sea Snail. *Wil Icth. App.* 17. *Raii ſyn. piſc.* 74. *Pet. Gaz. tab.* 51. *fig.* 5.
Liparis. *Arted. ſynon.* 177.
Cyclopterus Liparis C. corpore nudo, pinnis dorſali anali caudalique unitis. *Lin. ſyſt.* 414.
Cyclogaſter. *Gronov. Zooph.* No. 198.

THIS fiſh takes the name of ſea ſnail from the ſoft and unctuous texture of its body, reſembling that of the land ſnail. It is almoſt tranſparent, and ſoon diſſolves and melts away.

It is found in the ſea near the mouths of great rivers. We have ſeen it in *January* full of ſpawn.

* *Philoſ. Tranſ.* 1774. *p.* 445.
† *Crantz's Hiſt. Greenland*, I. 96.

DESCRIP. The length is five inches: the color when freſh taken a pale brown, ſometimes finely ſtreaked with a darker; the ſhape of the body round, but near the tail compreſſed ſideways: the belly is white and very protuberant.

The head is large, thick, and round. There are no teeth in the mouth, but the jaws are very rough: the tongue very large: the eyes very ſmall.

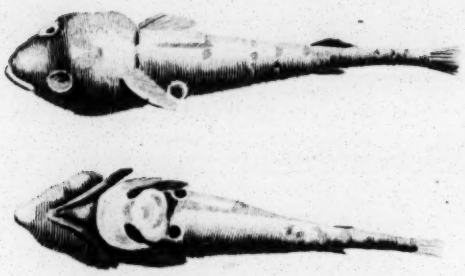
The orifice to the gills is very ſmall. It has ſix branchioſtegous rays.

The pectoral fins are very broad, thin, and tranſparent, and almoſt unite under the throat. The firſt ray next the throat is very long, extends far beyond the reſt, and is as fine as a hair. Over the baſe of each is a ſort of operculum, or lid, ending in a point: this is capable of being raiſed or depreſſed at pleaſure.

Behind the head begins the dorſal fin, which extends quite to the end of the tail: the ventral fin begins at the anus, and unites with the other at the tail.

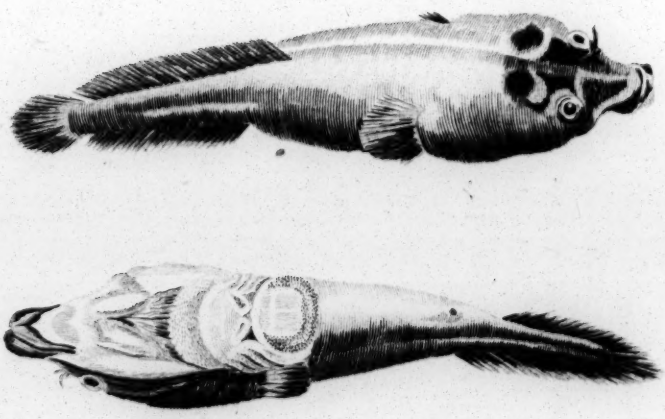
Beneath the throat is a round depreſſion of a whitiſh color, like the impreſſion of a ſeal, ſurrounded with twelve ſmall pale yellow tubera, by which it is probable it adheres to the ſtones like the other ſpecies.

BIMACULATED SUCKER.



Pl. XXII.

JURA SUCKER.



Leſſer Sucking Fiſh. *Borlaſe Nat. Hiſt. Cornwal*, 269. *Tab.* xxv. *fig.* 28.

Lepadogaſter. Le Barbier ou Porteecuelle. *Gouan piſc.* 177. *Tab.* 1. *fig.* 6, 7.

59. JURA.

THIS ſpecies is found in *Cornwal.* I alſo diſcovered it in the Sound of *Jura.*

Its length is about four inches. The ſkin without ſcales, ſlippery, and of a duſky color. The body taper. The noſe grows ſlenderer from the head, and ends round.

The teeth ſmall. Before each eye is a ſmall filament. Behind the eyes are two ſemilunar marks.

In the middle of the back an oval mark formed by ſmall dots, of a whitiſh color. The dorſal fin lies near the tail, and conſiſts of eleven rays: the anal is placed oppoſite, and has nine rays. The tail is rounded. The ventral have four rays, are joined by an intervening membrane with an oval depreſſion in the middle. Beyond that is another ſtrong membrane with a ſimilar depreſſion. By means of theſe inſtruments it adheres to ſtones or rocks.

Noſe

XI. PIPE.

Noſe long and tubular.
No orifice to the gills:
The breathing aperture on the hind part of the head.
No ventral fins.
The body covered with a ſtrong cruſt.

60. LONGER.

Acus *Ariſtotelis* caudâ ſerpentinâ. *Sib. Scot.* 24. *Tab.* 19.
Typhle altera. *Geſner piſc.* 1025.
Syngnathus corpore quadrangulo, pinnâ caudæ carens? *Arted. Spec.* 3.
Syngnathus barbarus. S. pinnis caudæ anique nullis, corpore ſexangulato? *Lin. ſyſt.* 417.

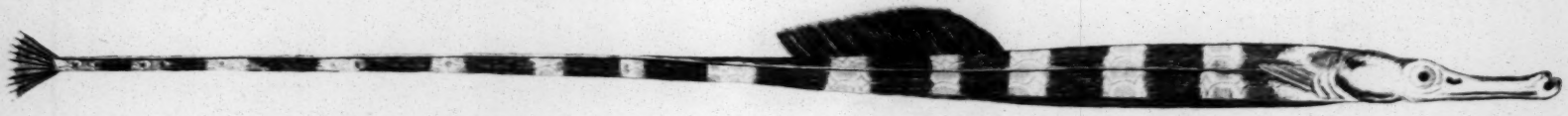
THIS ſpecies, deſcribed by Sir *Robert Sibbald*, was two feet in length; that we examined only ſixteen inches.

The noſe was an inch long, compreſſed ſideways, and the end of the lower mandible turned up: the aperture of the mouth was very ſmall.

The irides were red; behind each eye was a deep brown line.

The body, in the thickeſt part, was about equal to a ſwan's quil, hexangular from the end of the dorſal fin; from thence to the tail quadrangular. The belly was ſlightly carinated, and marked along the middle with a duſky line. Under the tail commencing at the *anus* is a ſulcus or groove, ſix inches

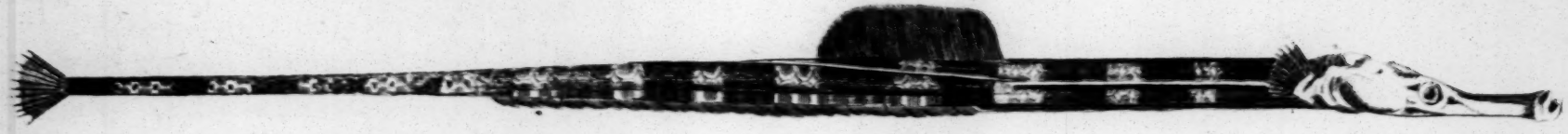
Sp. 1.



PIPE FISH.

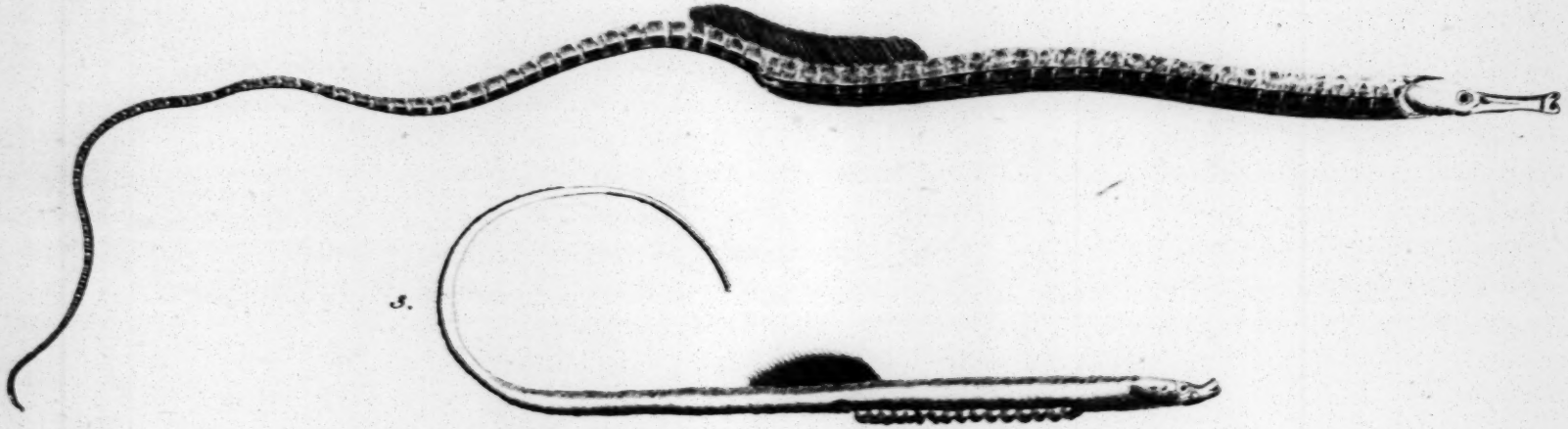
No. 60.

1.



No. 61.

2.



3.

No. 62.

P. Mazell del. et fe.

inches and a half long, covered by two longitudinal valves which concealed a multitude of young fiſh. On cruſhing this part, hundreds may be obſerved to crawl out.

The general color of the fiſh was an olive brown: the ſides marked with numbers of bluiſh lines pointing from the back to the belly, which, in dried fiſh, ſeemed like the ſigns of ſo many joints. Thoſe in a freſh ſubject ceaſed beyond the vent; all beyond that was ſpotted with brown.

The dorſal fin was narrow and thin, conſiſting of forty rays, was two inches long, and placed rather nearer to the head than the tail.

The vent was ſeven inches from the tip of the noſe; the body to that orifice was of an equal thickneſs, but from thence tapered to a very ſmall point, having no mark of a fin.

The pectoral fins had twelve rays; the anal three.

When this fiſh and the next ſpecies are dried, they appear covered with numbers of angular cruſts, finely radiated from their centre.

As we want a generical name in our language for this genus, we call it the *Pipe Fiſh*, from its ſlender body.

L'Oreul

61. SHORTER.

L' Orueul marin. *Belon*, 446.
Acus ſecunda ſpecies, ſive, acus *Ariſtotelis*. *Rondel.* 229.
Typhle. *Geſner piſc.* 1025.
Trummeter, Meherſchlange. *Schonevelde*, 11.
Acus *Ariſtotelis* ſeu ſecunda. *Wil. Ich.* 158. *Raii ſyn. piſc.* 47.
Syngnathus corpore medio heptagono, caudâ pinnatâ. *Arted. ſynon.* 2.
Syngnathus acus. S. pinnis caudæ ani pectoralibuſque radiatis, corpore ſeptem-angulato. *Lin. ſyſt.* 416.
Kantnahl. *Faun. Suec.* No. 376.
Syngnathus cauda pinnata. *Gronov. Zooph.* No 172.
Sea-adder. *Borlaſe Cornw.* 267.

THIS is ſhorter and thicker than the former, yet I have ſeen one of the length of ſixteen inches. The middle of the body in ſome is hexangular, in others heptangular. *Linnæus* conſtitutes two ſpecies of them, his *Syngnathus Typhle*, and his *Syngnathus Acus*; but we join with Doctor *Gronovius*, in thinking them only varieties of the ſame fiſh.

The mouth is formed like that of the former: the irides are yellow: cloſe behind the head are the pectoral fins, which are ſmall and ſhort.

On the lower part of the back is one narrow fin; beyond the vent the tail commences, which is long and quadrangular.

At the extremity is a fin round and radiated.

The body is covered with a ſtrong cruſt, elegantly divided into ſmall compartments.

The belly is white; the other parts brown.

Beſides theſe ſpecies of hard-ſkinned Pipe fiſh, we

we have been informed, that the *Syngathus Hippocampus* of *Linnæus*, or what the *Engliſh* improperly call the ſea horſe, has been found on the ſouthern ſhores of this kingdom.

62. LITTLE.

Acui *Ariſtotelis* congener piſciculus, pueris Cornubienſibus *Sea Adder*, Acus Lumbriciformis, aut Serpentinum. *Wil. Ich.* 160. *Raii ſyn. piſc.*

Syngnathus teres, pinnis pectoralibus caudaque carens. *Arted. ſynon.* 2.

Syngnathus ophidion. *Lin. ſyſt.* 417.

Haſsnahl, Tangſnipa. *Faun. Suec.* No. 375.

THE little pipe fiſh ſeldom exceeds five inches in length, is very ſlender, and tapers off to a point. It wants both the pectoral and tail fins; is covered with a ſmooth ſkin, not with a cruſt as the two former kinds are.

The noſe is ſhort and turns a little up; the eyes prominent.

On the back is one narrow fin.

This ſpecies is not viviparous: on the belly of the female is a long hollow, to which adhere the eggs, diſpoſed in two or three rows. They are large, and not numerous.

The ſynonym of *Serpent* is uſed in ſeveral languages to expreſs theſe fiſh: the *French* call one ſpecies *Orueul*, from a ſort of ſnake not unlike the blindworm: the *Germans* call it *Meherſchlange*; and the *Corniſh*, the ſea adder.

DIV. III. BONY FISH.

SECT. I. APODAL.

XII. EEL.

Body long, ſlender, and ſlippery.
Noſtrils tubular.
Back, ventral, and tail fins, united.
Aperture to the gills ſmall, and placed behind the pectoral fins.
Ten branchioſtegous rays.

53. COMMON.

Εγχέλυς. *Ariſt. Hiſt. an. Lib.* IV. *c.* 11. VI. 14. 16. *Oppian Halieut.* I. 516. IV. 450.
Anguilla *Plinii Lib.* IX. *c.* 21.
L' Anguille. *Belon*, 291. *Obſ.* 55.
Anguilla. *Rondel. fluv.* 198. *Geſner piſc.* 40.
Ael. *Schonevelde*, 14.
The Eel. *Wil. piſc.* 109. *Raii ſyn. piſc.* 37.
Muræna unicolor maxilla inferiore longiore. *Arted. ſyn.* 39.
Muræna anguilla. *Lin. ſyſt.* 426. *Gronov. Zooph.* No. 166.
Ahl. *Faun. Suec.* No. 301.
Aal. *Kram.* 387.

THE eel is a very ſingular fiſh in ſeveral things that relate to its natural hiſtory, and in ſome reſpects borders on the nature of the reptile tribe.

It is known to quit its element, and during night to wander along the meadows, not only for change



Ecl. 7 cap.
Mechanicus, by mother Hecate Lib. XIII

change of habitation, but alſo for the ſake of prey, feeding on the ſnails it finds in its paſſage.

During winter it beds itſelf deep in the mud, and continues in a ſtate of reſt like the ſerpent kind. It is very impatient of cold, and will eagerly take ſhelter in a whiſp of ſtraw flung into a pond in ſevere weather, which has ſometimes been practiſed as a method of taking them. *Albertus** goes ſo far as to ſay, that he has known eels to ſhelter in a hay-rick, yet all periſhed through exceſs of cold.

It has been obſerved, that in the river *Nyne*†, there is a variety of ſmall eel, with a leſſer head and narrower mouth than the common kind, that it is found in cluſters in the bottom of the river, and is called the *Bed-eel:* theſe are ſometimes rouſed up by violent floods, and are never found at that time with meat in their ſtomachs. This bears ſuch an analogy with the cluſtering of blindworms in their quieſcent ſtate, that we cannot but conſider it as a further proof of a partial agreement in the nature of the two genera.

GENERATION.

The ancients adopted a moſt wild opinion about the generation of theſe fiſh, believing them to be either created from the mud, or that the ſcrapings

* *Geſner piſc.* 45.

† *Morton*'s *Hiſt. Northampt.* 419. *Pliny* obſerves, that the eels of the lake *Benacus* collect together in the ſame manner in the month of *October*, poſſibly to retreat from the winter's cold. *Lib.* ix. *c.* 22.

of

of their bodies which they left on the ſtones, were animated and became young eels. Some moderns gave into theſe opinions, and into others that were equally extravagant. They could not account for the appearance of theſe fiſh in ponds that never were ſtocked with them, and that were even ſo remote as to make their being met with in ſuch places a phænomenon that they could not ſolve. But there is much reaſon to believe, that many waters are ſupplied with theſe fiſh by the aquatic fowl of prey, in the ſame manner as vegetation is ſpread by many of the land birds, either by being dropped as they carry them to feed their young, or by paſſing quick thro' their bodies, as is the caſe with herons; and ſuch may be occaſion of the appearance of theſe fiſh in places where they were never ſeen before. As to their immediate generation, it has been ſufficiently proved to be effected in the ordinary courſe of nature, and that they are viviparous.

VIVIPAROUS.

They are extremely voracious, and very deſtructive to the fry of fiſh.

No fiſh lives ſo long out of water as the eel: it is extremely tenacious of life, as its parts will move a conſiderable time after they are flayed and cut into pieces.

DESCRIP. The eel is placed by *Linnæus* in the genus of *Muræna*, his firſt of the apodal fiſh, or ſuch which want the ventral fins.

The eyes are placed not remote from the end of the

the noſe: the irides are tinged with red: the under jaw is longer than the upper: the teeth are ſmall, ſharp, and numerous: beneath each eye is a minute orifice: at the end of the noſe two others, ſmall and tubular.

The fiſh is furniſhed with a pair of pectoral fins, rounded at their ends. Another narrow fin on the back, uniting with that of the tail; and the anal fin joins it in the ſame manner beneath.

Behind the pectoral fins is the orifice to the gills, which are concealed in the ſkin.

SILVER EELS.

Eels vary much in their colors, from a ſooty hue to a light olive green; and thoſe which are called ſilver eels, have their bellies white, and a remarkable clearneſs throughout.

GRIGS.

Beſides theſe there is another variety of this fiſh known in the *Thames* by the name of *Grigs*, and about *Oxford* by that of *Grigs* or *Gluts*. Theſe are ſcarce ever ſeen near *Oxford* in the winter, but appear in ſpring, and bite readily at the hook, which common eels in that neighbourhood will not. They have a larger head, a blunter noſe, thicker ſkin, and leſs fat than the common ſort; neither are they ſo much eſteemed, nor do they often exceed three or four pounds in weight.

Common eels grow to a large ſize, ſometimes ſo great as to weigh fifteen or twenty pounds, but that is extremely rare. As to inſtances brought by *Dale* and others, of theſe fiſh encreaſing to a ſuperior magnitude, we have much reaſon to ſuſpect

them to have been congers, ſince the enormous fiſh they deſcribe, have all been taken at the mouths of the *Thames* or *Medway*.

The eel is the moſt univerſal of fiſh, yet is ſcarce ever found in the *Danube*, tho' it is very common in the lakes and rivers of *Upper Auſtria*.

The *Romans* held this fiſh very cheap, probably from its likeneſs to a ſnake.

> Vos anguilla manet longæ cognata colubræ*,
> Vernula riparum pinguis torrente cloaca.
>
> For you, is kept a ſink-fed ſnake-like eel.

On the contrary, the luxurious *Sybarites* were ſo fond of theſe fiſh, as to exempt from every kind of tribute the perſons who ſold them †.

* *Juvenal. Sat.* v. 103.
† *Athenæus. Lib.* xii. *p.* 521.

Κόγγρος. *Ariſt. Hiſt. an. lib.* I. &c.
Γόγγρος *Oppian Halieut.* I. 113. 521.
Conger. *Ovidii Halieut.* 115. *Plinii lib.* IX. *c.* 16. 20.
Le Congre. *Belon* 159.
Conger. *Rondel.* 394. *Geſner piſc.* 290.
The Conger, or Conger Eel. *Wil. Icth.* III. *Raii ſyn.* 64. CONGER. *piſc.* 37.
Muræna ſupremo margine pinnæ dorſalis nigro. *Arted. ſynon.* 40.
Muræna Conger. M. roſtro tentaculis duobus, linea laterali ex punctis albida. *Lin. ſyſt.* 426.

THE conger grows to a vaſt ſize. Doctor *Borlaſe*, to whom we are obliged for ſeveral informations relating to this ſpecies, aſſures us, that they are ſometimes taken near *Mount's-Bay* of one hundred pounds weight *. SIZE.

They differ from the common eel in the following particulars: 1. Their color in general is more dark. 2. Their eyes much larger in proportion. 3. The irides of a bright ſilvery color. 4. The lower jaw is rather ſhorter than the upper. 5. The ſide line is broad, whitiſh, and marked with a row of ſmall ſpots; Mr. *Ray* ſays a double row, but we did not obſerve it in the fiſh we examined. 6. The edges of the dorſal and anal fins are black. 7. They have more bones than the common eel, DESCRIP.

* We have heard of ſome taken near *Scarborough* that were ten feet and a half long, and eighteen inches in circumference in the thickeſt part.

eſpecially along the back quite to the head. 8. They grow to a much larger ſize.

As to the diſtinction that Mr. *Ray*, and other writers, make of the ſmall beards at the end of the noſe, we think it not to be depended on, being ſometimes found in both kinds, and ſometimes entirely wanting.

We believe they generate like the freſh-water ſpecies: innumerable quantities, of what are ſuppoſed to be their fry, come up the *Severn* about the month of *April*, preceding the *Shads*, which it is conjectured migrate into that river to feed on them: they are called *Elvers*. They quite ſwarm during their ſeaſon, and are taken in a kind of ſieve made of hair-cloth, fixed to a long pole; the fiſherman ſtanding on the edge of the water during the tide, puts in his net as far as he can reach, and drawing it out again takes multitudes at every ſweep, and will take as many during one tide as will fill a buſhel. They are dreſſed, and reckoned very delicate.

Elvers.

Congers are extremely voracious, preying on other fiſh, and on crabs at the time they have loſt their ſhell, and are in a ſoft ſtate. They and eels in general are alſo particularly fond of carcaſſes of any kind, being frequently found lodged in ſuch that are accidentally taken up.

Theſe fiſh are an article of commerce in *Cornwall*; numbers are taken on that coaſt, and exported to *Spain* and *Portugal*, particularly to *Barcelona*.

celona. The quantities that were ſent from *Mount's-Bay* for five years, were as follow:

	Cwt.	*qr.*	*lb.*
1756	46	0	13
1757	164	0	21
1758	164	1	3
1759	213	0	3
1760	71	3	0

CAPTURE. Some are taken by a ſingle hook and line, but (becauſe that way is tedious, and does not anſwer the expence of time and labour) they are chiefly caught by *Bulters*, which are ſtrong lines five hundred feet long, with ſixty hooks, each eight feet aſunder, baited with pilchards or mackrel: the *Bulters* are ſunk to the ground by a ſtone faſtened to them: ſometimes ſuch a number of theſe are tied together as to reach a mile.

We have been told that the fiſhermen are very fearful of a large conger, leaſt it ſhould endanger their legs by clinging round them; they therefore kill them as ſoon as poſſible by ſtriking them on the navel.

CURE. They are afterwards cured in this manner: they are ſlit, and hung on a frame till they dry, having a conſiderable quantity of fat, which it is neceſſary ſhould exude before they are fit for uſe. It is remarkable that a conger of a hundred weight will waſte by drying to twenty-four pounds; the

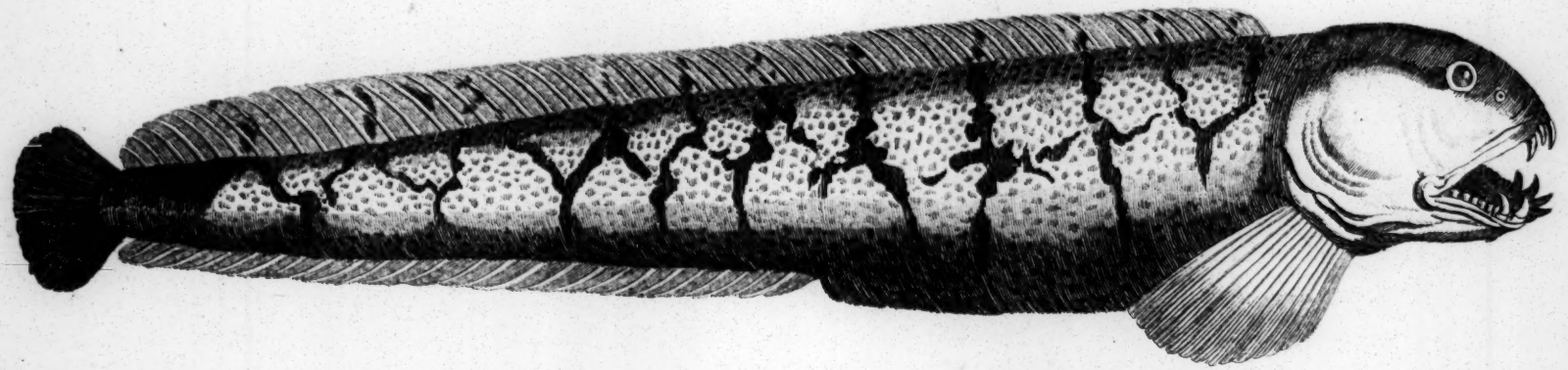
people therefore prefer the ſmalleſt, poſſibly becauſe they are ſooneſt cured. During the proceſs there is a conſiderable ſtench; and it is ſaid that in the fiſhing villages the poultry are fed with the maggots that drop from the fiſh.

The *Portugueſe* and *Spaniards* uſe thoſe dried congers after they have been ground into a powder, to thicken and give a reliſh to their ſoups. We think they are ſold for about forty ſhillings the quintal, which weighs one hundred and twenty-ſix pounds.

A fiſhery of congers would be of great advantage to the inhabitants of the *Hebrides*. Perhaps they would at firſt undertake it with repugnancy, from their abſurd averſion to the eel kind.

Pl. XXIV.

WOLF FISH.



P. Mazell del. et Sculp.

XIII. WOLF FISH.

Blunt head: long body.
One dorſal fin reaching almoſt from the head to the tail.
Fore teeth conic and large.
Grinders flat and round.
Seven branchioſtegous rays.

65. RAVENOUS.

Anarrhicas. *Geſner Paralip.* 4.
Lupus marinus *Caii opuſc.* 113.
Lupus marinus noſtras, quem *incolæ* Wolff. *Schonevelde*, 45. *Tab.* 5.
Cat-Fiſh. *Sib. Scot.* III. 25. *Tab.* 16.
Wolf Fiſh, Sea Wolf, or Woof. *Wil. Ich.* 130. *Raii ſyn. piſc.* 40.
Steen-bider. *Pontop. Norway*, II. 151.
Kigutilik *i. e.* dentatus. *Crantz's Greenl.* I. 96.
Anarhichas. *Arted. ſynon.* 39.
Anarhichas Lupus. *Lin. ſyſt.* 430.
Zee Wolf. *Gronov. Muſ.* No. 44. *Zooph.* No. 400.

PLACE.

THIS fiſh ſeems to be confined to the northern parts of the globe. We find it in the ſeas of *Greenland*, in thoſe of *Iceland** and *Norway*, on the coaſts of *Scotland*, and of *Yorkſhire*, and laſtly, in that part of the *German* ocean, which waſhes the ſhores of *Holland*, the moſt ſouthern of its haunts we can with any certainty mention.

* Where it is called *Steinbeiſſer*. *Schonevelde*, 45.

It is a moſt ravenous and fierce fiſh, and when taken faſtens on any thing within its reach: the fiſhermen dreading its bite, endeavor as ſoon as poſſible to beat out its fore teeth, and then kill it by ſtriking it behind the head. *Schonevelde* relates, that its bite is ſo hard that it will ſeize on an anchor, and leave the marks of its teeth in it; and the *Daniſh* and *German* names of *Steenbider* and *Steinbeiſſer*, expreſs the ſenſe of its great ſtrength, as if it was capable of cruſhing even ſtones with its jaws.

FOOD. It feeds almoſt entirely on cruſtaceous animals, and ſhell fiſh, ſuch as crabs, lobſters, prawns, muſcles, ſcollops, large whelks, &c. theſe it grinds to pieces with its teeth, and ſwallows with the leſſer ſhells. It does not appear they are diſſolved in the ſtomach, but are voided with the fœces, for which purpoſe the aperture of the anus is wider than in other fiſh of the ſame ſize.

It is full of roe in *February*, *March*, and *April*, and ſpawns in *May* and *June*.

This fiſh has ſo diſagreeable and horrid an appearance, that nobody at *Scarborough* except the fiſhermen will eat it, and they prefer it to holibut. They always before dreſſing take off the head and ſkin.

SIZE. The ſea wolf grows to a large ſize: thoſe on the *Yorkſhire* coaſt are ſometimes found of the length of four feet, and, according to Doctor *Gronovius*, have been taken near *Shetland* ſeven feet long, and even

even more. That which we examined was three feet two inches and an half from the tip of the noſe to the end of the tail: the length of the head was eight inches, from the gills to the vent, ten; from thence to the tip of the tail, twenty and one half.

The circumference of the head was ſeventeen inches, at the ſhoulders twenty, but near the tail only four and a half.

Its weight was twenty pounds and a quarter.

The head is a little flatted on the top: the noſe blunt; the noſtrils very ſmall; the eyes ſmall, and placed near the end of the noſe. *Irides* pale yellow.

TEETH. The teeth are very remarkable, and finely adapted to its way of life. The fore teeth are ſtrong, conical, diverging a little from each other, ſtand far out of the jaws, and are commonly ſix above, and the ſame below, though ſometimes there are only five in each jaw: theſe are ſupported within-ſide by a row of leſſer teeth, which makes the number in the upper jaw ſeventeen or eighteen, in the lower eleven or twelve.

The ſides of the under jaw are convex inwards, which greatly adds to their ſtrength, and at the ſame time allows room for the large muſcles with which the head of this fiſh is furniſhed.

The *dentes molares*, or grinding teeth of the under jaw, are higher on the outer than the inner edges, which inclines their ſurfaces inward: they join to the

the canine teeth in that jaw, but in the upper are ſeparate from them.

In the centre are two rows of flat ſtrong teeth, fixed on an oblong baſis upon the bones of the palate and noſe.

Bufonites. Theſe and the other grinding teeth are often found foſſil, and in that ſtate called *Bufonites*, or *Toad-ſtones*: they were formerly much eſteemed for their imaginary virtues, and were ſet in gold, and worn as rings.

The two bones that form the under jaw are united before by a looſe cartilage, which mechaniſm admitting of a motion from ſide to ſide, moſt evidently contributes to the deſign of the whole, *viz.* a facility of breaking, grinding, and comminuting its teſtaceous and cruſtaceous food. At the entrance of the gullet, above and below, are two echinated bones: theſe are very ſmall, being the leſs neceſſary, as the food is in a great meaſure comminuted in the mouth by aid of the grinders.

The body is long, and a little compreſſed ſideways; the ſkin ſmooth and ſlippery: it wants the lateral line.

The pectoral fins conſiſt of eighteen rays, are five inches long, and ſeven and a quarter broad.

The dorſal fin extends from the hind part of the head almoſt to the tail; the rays in the freſh fiſh are not viſible.

The anal fin extends as far as the dorſal fin.

The

The tail is round at its end, and conſiſts of thirteen rays.

The ſides, back, and fins, are of a livid lead color; the two firſt marked downwards with irregular obſcure duſky lines: theſe in different fiſh have different appearances. The young are of a greeniſh caſt, reſembling the ſea wrack, which they reſide amongſt for ſome time after their birth. COLOR.

We think ourſelves much indebted to Mr. *Travis*, Surgeon, at *Scarborough*, for his ingenious remarks on this fiſh, as well as on ſeveral others that frequent that coaſt, being a gentleman much ſkilled in icthyology, and extremely liberal in communicating his knowlege.

Head

XIV. LAUNCE.

Head ſlender.
Body long and ſquare.
Upper lip doubled in.
Dorſal and anal fin reaching almoſt to the tail.
Seven branchioſtegous rays.

66. SAND.

Ammodytes piſcis, ut nos vocavimus pro *anglico* Sandilz. *Geſner paralip.* 3.
Tobian, vel Tobias Sandtſpiring. *Schonevelde*, 76.
Ammodytes *Geſneri*, *Wil. Icth.* 113.
Sand Eels, or Launces. *Raii ſyn. piſc.* 38, 165.
Ammodytes. *Arted. ſynon.* 29.
Ammodytes Tobianus. *Lin. ſyſt.* 430.
Tobis. *Faun. Suec.* 302. *Gronov. Zooph.* No. 404.

THE launce is found on moſt of our ſandy ſhores during ſome of the ſummer months: it conceals itſelf on the receſs of the tides beneath the ſand, in ſuch places where the water is left, at the depth of about a foot, and are in ſome places dug out, in others drawn up by means of a hook contrived for that purpoſe. They are commonly uſed for baits for other fiſh, but they are alſo very delicate eating.

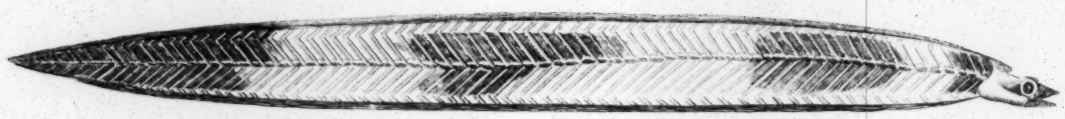
Theſe fiſh are found in the ſtomachs of the *Porpeſſe*, an argument that the laſt roots up the ſand with its noſe as hogs do the ground.

SIZE. They grow ſometimes the length of nine or ten inches

Pl. XXV.

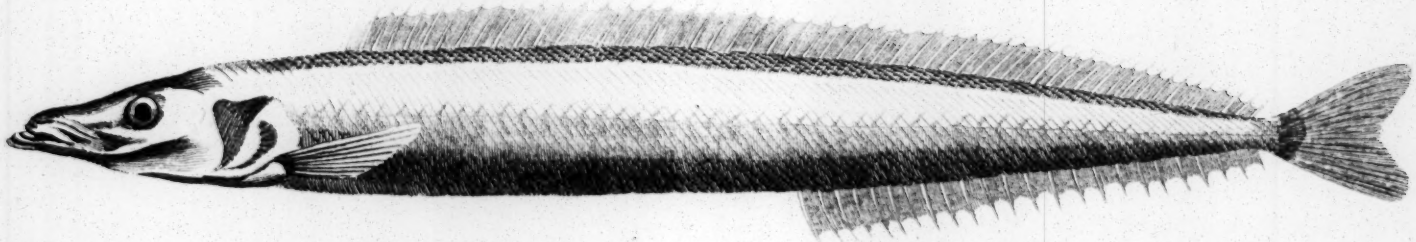
Nº 67.

MORRIS.



LAUNCE.

Nº 66.



inches: the females are longer and ſlenderer than the males.

The form of the body is ſquare, the ſides are rounded, and the angles not ſharp: it is nevertheleſs long and ſlender.

The head is ſmall and taper; the under jaw much longer than the upper: the upper jaw is moveable, capable of being protruded, ſo that when open the gape is very wide.

The irides are ſilvery.

The dorſal fin runs almoſt the whole length of the back, is very narrow, and conſiſts of fifty-eight rays: the pectoral fins ſmall, and have twelve: the anus is placed much nearer the tail than the head, is narrow, and extends almoſt to the former.

The tail is forked, but the lobes rounded at their extremities.

The color of the back is blue, varying with green: on each ſide the back is a narrow duſky line or two. The ſides and belly are ſilvery; the lateral line ſtrait.

Small

XV. MORRIS.

Small head.
Body extremely thin, compreſſed ſideways.
No pectoral fins.

67. Anglesea. Leptocephalus. *Grönov. Zooph.* No. 409. *tab.* 13. *fig.* 3.

THIS ſpecies was diſcovered in the ſea near *Holyhead* by the late Mr. *William Morris*, and, in memory of our worthy friend, we have given it his name. On receiving it from Mr. *Morris*, we communicated it to that accurate Icthyologiſt, Doctor *Laurence Theodore Gronovius*, of *Leyden*, who has deſcribed it in his *Zoophylacium*, under the title of *Leptocephalus*, or ſmall head.

Descrip. The length was four inches; the head very ſmall; the body compreſſed ſideways, extremely thin, and almoſt tranſparent, about the tenth of an inch thick, and in the deepeſt part about one-third of an inch; towards the tail it grew more ſlender, and ended in a point; towards the head it ſloped down, the head lying far beneath the level of the back.

The eyes large; the teeth in both jaws very ſmall.

The lateral line ſtrait: the ſides marked with oblique ſtrokes, that met at the lateral line.

The

The aperture to the gills large.

It wanted the pectoral, ventral, and caudal fins: the dorsal fin was extremely low, and thin, extending the whole length of the back very near the tail. The anal fin was of the same delicacy, and extended to the same distance from the anus.

The

XVI. SWORD FISH.

The upper jaw extending to a great length, hard, ſlender, and pointed.
No teeth.
Eight branchioſtegous rays.
Slender body.

68. SICILIAN

Ξιφίας. *Ariſt. Hiſt. an. lib.* II. *c.* 13. VIII. *c.* 19. *Oppian Halieut. lib.* II. 462. III. 442.
Xiphias. *Ovid Halieut.* 97.
Xiphias, *i. e.* Gladius *Plinii lib.* XXXII. *c.* 2*.
L'Heron de mer, ou grand Eſpadaz. *Belon*, 102.
Xiphias. *Rondel.* 251.
Xiphias, *i. e.* Gladius piſcis. *Geſner piſc.* 1049. *Caii opuſc.* 104.
Schwert-fiſche. *Schonevelde*, 35. Sword Fiſh. *Wil. Ich.* 161. *Raii ſyn. piſc.* 52.
Xiphias. *Arted. ſynon.* 47.
Xiphias Gladius. *Lin. ſyſt.* 432.
Swerd-fiſk. *Faun. Suec.* No. 303.

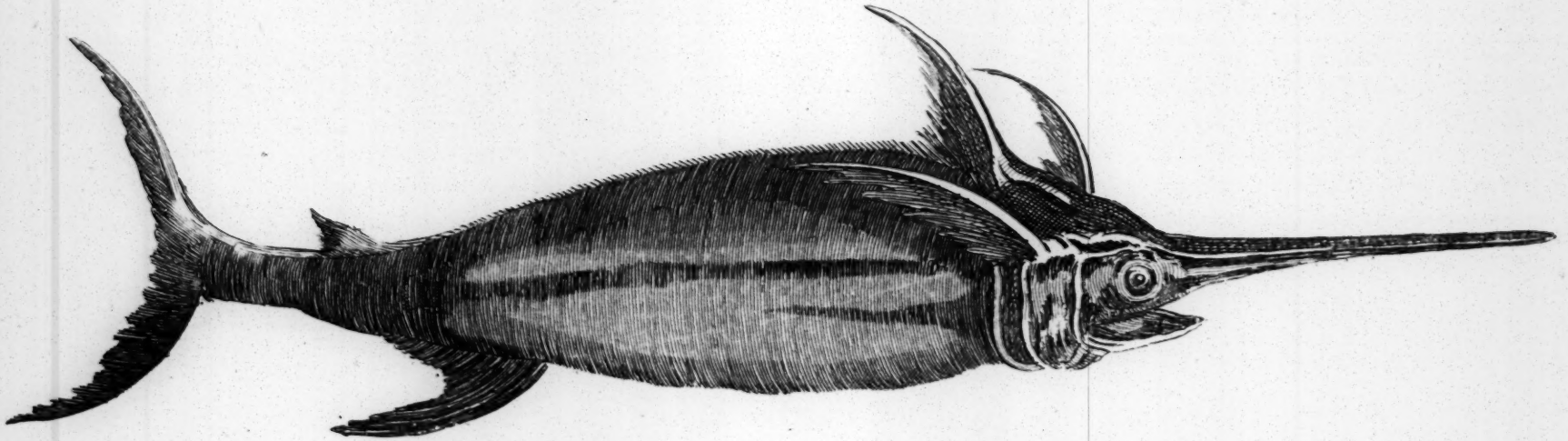
PLACE.

THIS fiſh ſometimes frequents our coaſts, but is much more common in the *Mediterranean* ſea, eſpecially in the part that ſeparates *Italy* from *Sicily*, which has been long celebrated for it: the promontory *Pelorus**, now *Capo di Faro*, was a place noted for the reſort of the *Xiphias*, and poſſibly the ſtation of the *ſpeculatores*, or the perſons who watched and gave notice of the approach of the fiſh.

* *Athenæus*, 314.

The

SWORD-FISH.



CAPTURE.

The antient method of taking them is particularly deſcribed by *Strabo* *, and agrees exactly with that practiſed by the moderns.

A man aſcends one of the cliffs that overhangs the ſea: as ſoon as he ſpies the fiſh, he gives notice either by his voice, or by ſigns, of the courſe it takes. Another, that is ſtationed in a boat, climbs up the maſt, and on ſeeing the ſword fiſh, directs the rowers towards it. As ſoon as he thinks they are got within reach, he deſcends, and taking a ſpear in his hand, ſtrikes it into the fiſh, which, after wearying itſelf with its agitation, is ſeized and drawn into the boat. It is much eſteemed by the *Sicilians*, who buy it up eagerly, and at its firſt coming into ſeaſon give about ſix-pence *Engliſh* per pound. The ſeaſon laſts from *May* till *Auguſt* †. The antients uſed to cut this fiſh into pieces, and ſalt it, whence it was called *Tomus Thurianus* ‡, from *Thurii*, a town in the bay of *Tarentum*, where it was taken and cured.

Kircher, in his *Muſurgia*, has preſerved a ſtrange incantation uſed by the *Sicilian* fiſhermen, at the capture of the *Peſce Spada*, as they call it, which is expreſſed in the following unintelligible jargon;

* *Lib.* I. *p.* 16.

† *Ray's Travels*, I. 271.

‡ *Tomus Thurianus, quem alii* Xiphiam *vocant.* Plinii *lib.* XXXII. *c.* 11.

Mamaſſu di pajanu,
Paletta di pajanu,
Majuſſu di ſtignela,
Palettu di paenu pale,
Pale la ſtagnetta,
Mancuta ſtigneta.
Pro naſtu, vardu, preſſu da
Viſu & da terra.

But this uſe of charmed words is not confined to *Sicily*; the *Iriſh* have their ſong at the taking of the razor ſhell; and the *Corniſh* theirs, at the taking of the whiſtle fiſh.

The ſword fiſh is ſaid to be very voracious, and that it is a great enemy to the Tunny, who (according to *Belon*) are as much terrified with it as ſheep are at the ſight of a wolf.

Ac durus Xiphias, *ictu non mitior enſis*;
Et pavidi magno fugientes agmine Thunni.
Ovid. Halieut. 97.

Sharp as a ſword the *Xiphias* does appear;
And crowds of flying *Tunnies* ſtruck with fear.

SIZE. It grows to a very large ſize; the head of one, with the pectoral fins, found on the ſhore near *Laugharn*, in *Caermarthenſhire*, alone weighing ſeventy-five pounds: the ſnout was three feet long, rough, and hard, but not hard enough to penetrate ſhips and ſink them, as *Pliny* pretends *.

* Xiphiam, *id eſt*, Gladium, *roſtro mucronato eſſe, ab hoc naves perfoſſas mergi in oceano.* Plin. *Lib.* XXXII. *c.* 11.

The

SNOUT.

The ſnout is the upper jaw, produced to a great length, and has ſome reſemblance to a ſword, from whence the name It is compreſſed at the top and bottom, and ſharp at the point. The under jaw is four times as ſhort as the upper, but likewiſe ſharp pointed. The mouth is deſtitute of teeth.

The body is ſlender, thickeſt near the head, and growing leſs and leſs as it approaches the tail.

The ſkin is rough, but very thin: the color of the back is duſky, of the belly ſilvery.

The dorſal fin begins a little above the gills, and extends almoſt to the tail: it is higheſt at the beginning and the end, but very low in the middle: a little above the tail, on each ſide, the ſkin riſes and forms two triangular protuberances, not unlike the ſpurious fins of the tunny.

The pectoral fins are long, and of a ſcythe-like form, and their firſt rays the longeſt.

The anus is placed at the diſtance of one-third part of the body from the tail; beneath are two anal fins.

The tail is exactly of the ſhape of a creſcent.

SECT. II. JUGULAR.

XVII. DRAGONET.

Upper lip doubled.
Eyes near each other.
Two breathing apertures on the hind part of the head.
First rays of the dorsal fin very long.

69. GEMMEOUS.

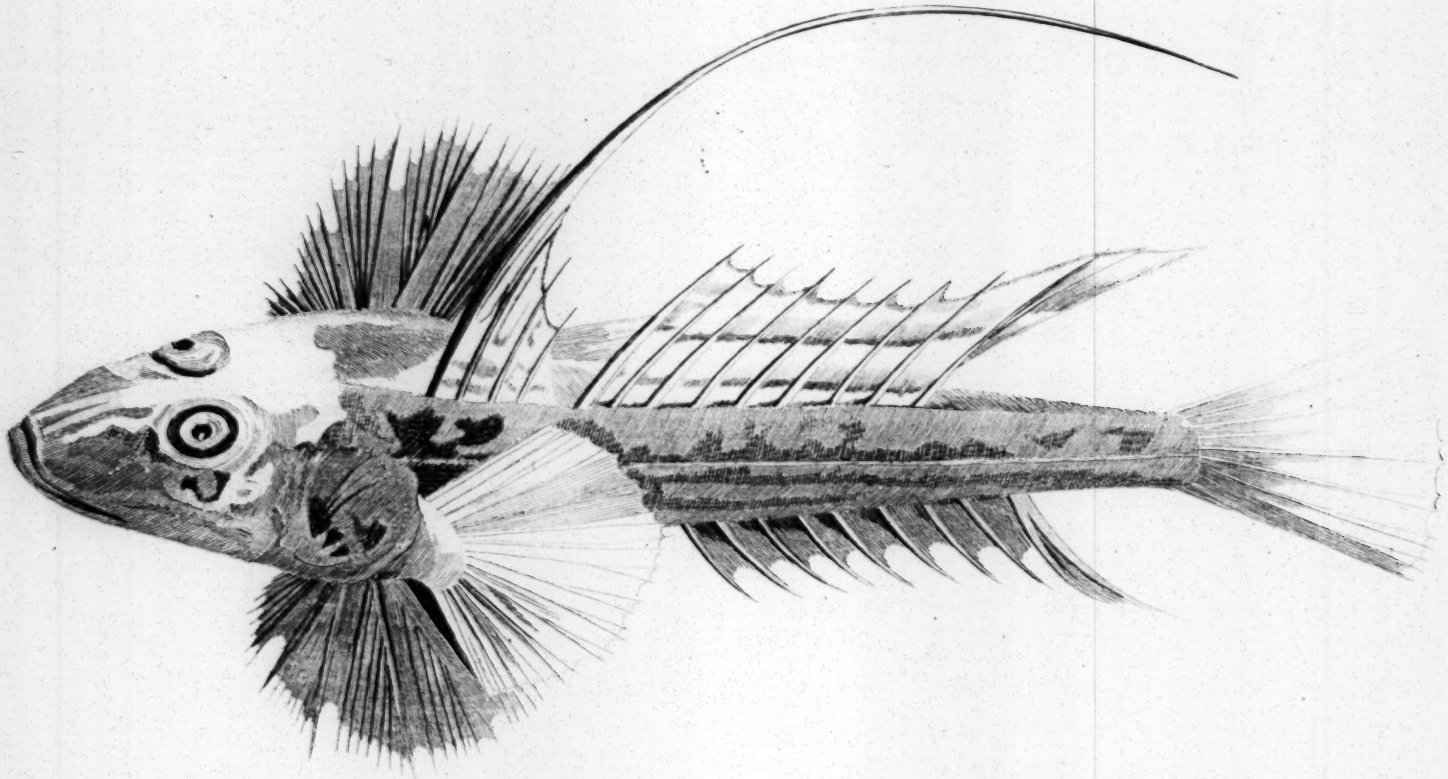
La tierce espece de Exocetus? *Belon*, 218.
Dracunculus. *Rondel.* 304.
Dracunculus, aranei species altera. *Gesner pisc.* 80.
Dragon fish. *Marten's Spitzberg*, 123.
Yellow Gurnard. *Phil. Transf.* No. 293.
Lyra Harvicensis. *Pet. Gaz. Tab.* 22. *Dale Harwich*, 431.
Callionymus Lyra. C. dorsalis prioris radiis longitudine corporis. *Lin. syst.* 433. *Faun. Suec.* No. 110.
Uranoscopus. *Gronov. Zooph.* No. 206.
Floy-fiske. *Pontop. Norway*, II. III.
Dracunculus marinus. *Borlase Cornwall*, 270. *Seb. Mus.* III. 92. *Tab.* 30. *fig.* 7.

NAME.

LINNÆUS has given this genus the name of *Callionymus*, a fish mentioned by several of the antients; but the notices they have left of it are so very slight, as to render it difficult to determine what species they intended. * *Pliny* makes it a synonym to the *Uranoscopus*, a fish frequent in the *Italian* seas, but very different from our *Dragonet*, a

* *Lib.* XXXII. *c.* 11.

name



name we have taken the liberty of forming, from the diminutive *Dracunculus*, a title given it by *Rondeletius*, and other authors. The *Engliſh* writers have called it the Yellow Gurnard, which having no one character of the *Gurnard* genus, we think ourſelves obliged to drop that name.

PLACE. It is found as far north as *Norway* * and *Spitzbergen*, and as far ſouth as the *Mediterranean* ſea, and is not unfrequent on the *Scarborough* coaſts, where it is taken by the hook in thirty or forty fathoms water. It is often found in the ſtomach of the Cod-fiſh.

DESCRIP. This ſpecies grows to the length of ten or twelve inches: the body is ſlender, round, and ſmooth.

The head is large, and flat at the top; in the hind part are two orifices, thro' which it breathes, and alſo forces out the water it takes in at the mouth, in the ſame manner as the cetaceous fiſh.

The apertures to the gills are cloſed: on the end of the bones that cover them is a very ſingular trifurcated ſpine.

The eyes are large, and placed very near each other on the upper part of the head, ſo that they look upwards; for which reaſon it has been ranked

* We have received it, with other curioſities, from that well-meaning prelate, *Erich Pontoppidan*, Biſhop of *Bergen*. He was alſo Vice-Chancellor of the Univerſity of *Copenhagen*, in which ſtation he died, *December* 20th. 1764, aged 66, much reſpected by his countrymen.

among the *Uranoſcopi*: the pupils are of a rich ſapphirine blue, the irides of a fine fiery carbuncle.

The upper jaw projects much farther than the lower: the mouth is very wide: the teeth are ſmall.

The pectoral fins are round, and of a light-brown color; the ventral placed before them, are very broad, and conſiſt of five branched rays.

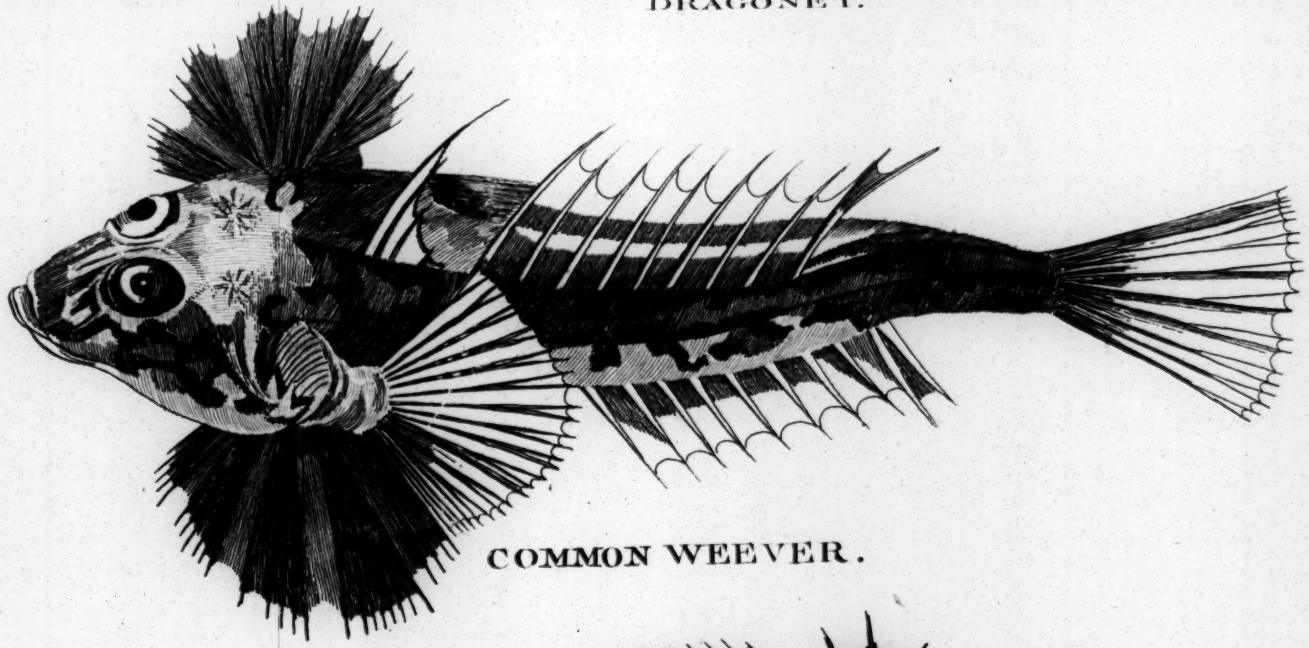
The firſt dorſal fin is very ſingular, the firſt ray being ſetaceous, and ſo long as to extend almoſt to the tail: thoſe of the ſecond dorſal fins are of a moderate length, except the laſt, which is produced far beyond the others.

The anus is placed about the middle of the belly; the anal fin is broad, and the laſt ray the longeſt. *Pontoppidan* calls this ſpecies the flying fiſh: whether it makes uſe of any of its fins to raiſe itſelf out of the water, as he was informed they did, we cannot pretend to ſay.

The tail is rounded and long, and conſiſts of ten rays.

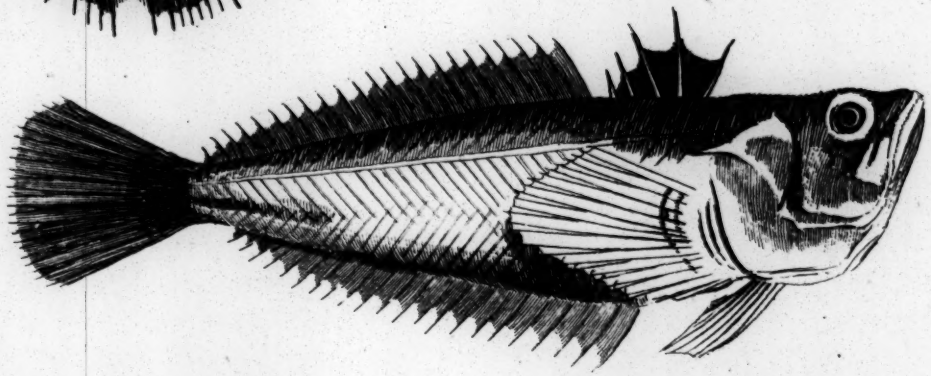
Colors. The ſide line is ſtrait: the colors are yellow, blue, and white, and make a beautiful appearance when the fiſh has been juſt taken. The blue is of an inexpreſſible ſplendor, the richeſt cærulean glowing with a gemmeous brilliancy. The throat is black. The membranes of all the fins extremely thin and delicate.

DRAGONET.



COMMON WEEVER.

No 71.



Dracunculus. *Wil. Icth.* 136. *Raii ſyn. piſc.* 79.
Cottus pinna ſecunda dorſi alba *Arted. ſynon.* 77.

Callionymus Dracunculus. C. dorſalis prioris radiis corpore brevioribus. *Lin. ſyſt.* 434.

70. SORDID.

THIS ſpecies we received from Mr. *Travis*. Its length was only ſix inches and an half.

The head was compreſſed; the forehead ſloped down to the noſe, being not ſo level as that of the preceding.

The eyes large, and almoſt contiguous.

The mouth ſmall; the teeth very minute.

Over the gills was a ſtrong trifurcated broad ſpine.

The firſt dorſal fin had four rays; the firſt ſetaceous, extending a little higher than the others, the laſt very ſhort: the two firſt rays and webs were yellow, the others black.

The ſecond had ten ſoft rays, their ends extending beyond the webs, which were pellucid.

The pectoral fins conſiſted of twenty rays, and were ferruginous, ſpotted with a deeper caſt of the ſame: the ventral fins conſiſted of five broad and much branched rays, like thoſe of the firſt ſpecies.

The anal fin was white, and had ten rays; the tail had ten rays. In both ſpecies they are bifurcated at their ends, and the ray next the anal fin in both is very ſhort.

In colors this is far inferior to the former, being of a dirty yellow, mixed with white and dusky ſpots; the belly is entirely white.

Lower

Lower jaw ſloping down.
Gill covers aculeated.
Six branchioſtegous rays.
Two dorſal fins.
Anus near the breaſt.

XVIII. WEEVER.

Δρακων? *Ariſt. Hiſt. an. Lib.* VIII. *c.* 13. *Ælian. Hiſt. an. Lib.* II. *c.* 50. *Oppian Halieut.* II. 459.
Draco marinus *Plinii Lib.* IX. *c.* 27. Draco, Dracunculus. *Lib.* XXXII. *c.* 11. Araneus. *Lib.* IX. *c.* 48.
La vive. *Belon.* 209.
Draco. *Rondel.* 300. *Geſner piſc.* 77, 78.
Peter-manniken, Schwertfiſche. *Schonevelde* 16.
The Weever. *Wil. Icth.* 238. *Raii ſyn. piſc.* 91.
Trachinus maxilla inferiore longiore, cirris deſtituta. *Arted. ſyn.* 71.
Trachinus Draco. *Lin. ſyſt.* 453. *Gronov. Zooph.* No. 274.
Farſing, Fiaſſing. *Faun. Suec.* No. 305.

71. COMMON.

THE qualities of this fiſh were well known to the antients, who take notice of them without any exaggeration: the wounds inflicted by its ſpines are exceedingly painful, attended with a violent burning, and moſt pungent ſhooting, and ſometimes with an inflammation that will extend from the arm to the ſhoulder.*

It is a common notion that theſe ſymptoms pro-

* It is probable that the malignity of the ſymptoms ariſes from the habit of body the perſon is in, or the part in which the wound is given.

ceed

ceed from ſomething more than the ſmall wound this fiſh is capable of inflicting; and that there is a venom infuſed into it, at leaſt ſuch as is made by the ſpines that form the firſt dorſal fin, which is dyed with black, and has a moſt ſuſpicious aſpect. The remedy uſed by a fiſherman in our neighbourhood is the ſea ſand, with which he rubs the place affected for a conſiderable time.* At *Scarborough*, ſtale urine, warmed, is uſed with ſucceſs.

This fiſh buries itſelf in the ſands, leaving only its noſe out, and if trod on immediately ſtrikes with great force; and we have ſeen them direct their blows with as much judgment as fighting cocks. Notwithſtanding this noxious property of the ſpines, it is exceeding good meat.

Name. The *Engliſh* name ſeems to have no meaning, being corrupted from the *French*, *la vive*, ſo called as being capable of living long out of the water, according to the interpretation of *Belon*.

Deſcrip. It grows to the length of twelve inches, but is commonly found much leſs.

The irides are yellow: the under jaw is longer than the upper, and ſlopes very much towards the belly: the teeth are ſmall.

The back is ſtrait, the ſides flat, the belly pro-

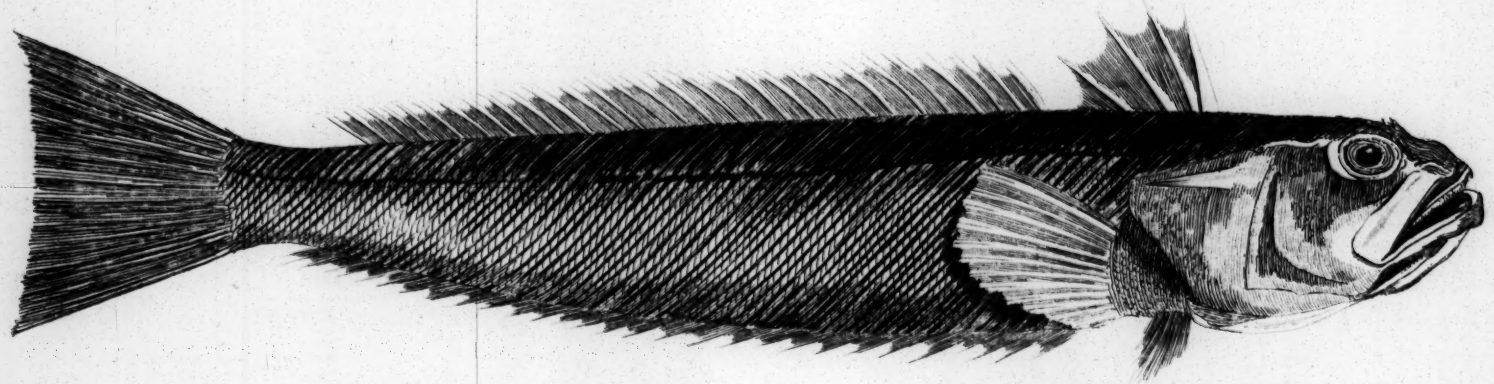
* In the *Univerſal Muſeum* for *November* 1765, is an inſtance of a perſon who was reduced to great danger by a wound from this fiſh, and who was cured by the application of ſweet oil, and taking *opium* and *venice treacle*.

minent,

Pl. XXIX.

Nº 72.

GREATER WEEVER.



minent, the lateral line ſtrait: the covers of the gills are armed with a very ſtrong ſpine.

The firſt dorſal fin conſiſts of five very ſtrong ſpines, which, as well as the intervening membranes are tinged with black; this fin, when quieſcent, is lodged in a ſmall hollow.

The ſecond conſiſts of ſeveral ſoft rays, commences juſt at the end of the firſt, and continues almoſt to the tail. The pectoral fins are broad and angular; the ventral fins ſmall.

The vent is placed remarkably forward, very near the throat: the anal fin extends to a ſmall diſtance from the tail, is a little hollowed in the middle, but not ſo much as to be called forked.

The ſides are marked lengthways with two or three dirty yellow lines, and tranſverſely by numbers of ſmall ones: the belly ſilvery.

Draco major ſeu araneus. *Salvian.* 70.
Greater Weever. *Tour Scotland,* 1769, octavo. 72. GREAT.

THE length eleven inches: greateſt depth one and three quarters: head flat: eyes large: edges of the jaws rough with minute teeth: lower jaw the longeſt: head covered with minute tubercles: cheeks and gills with minute ſcales: on the gills is a ſharp ſpine.

Firſt dorſal fin black, with five ſpines: the ſecond reaches almoſt to the tail: in the pectoral fins are thirteen branched rays: in the ventral, ſix: the anal extends oppoſite to the ſecond dorſal fin: tail large, triangular, even at the end.

The ſcales run in oblique lines from the back to the belly, with a diviſion between each row.

Inhabits the ſea near *Scarborough.*

Head

XIX. COD FISH.

Head ſmooth.
Seven ſlender branchioſtegous rays.
Body oblong; ſcales deciduous.
All the fins covered with a common ſkin.
Ventral fins ſlender, and ending in a point.
Teeth in the jaws; and in the palate, a ſeries of minute teeth cloſely ſet together.

* With three dorſal fins; the chin bearded.

73. COMMON.

La Morue. *Belon*, 121.
Molva. *Rondel.* 280.
Molva ſive morhua altera. *Geſner piſc.* 88.
Kablauw. *Schonevelde*, 18.
Aſellus major vulgaris. *Wil. Icth.* 165.
Cod-fiſh, or Keeling. *Raii ſyn. piſc.* 53.
Gadus dorſo tripterygio, ore cirrato, cauda æquali fere cum radio primo ſpinoſo. *Arted. ſynon.* 35.
Gadus morhua. *Lin. ſyſt.* 436. *Gronov. Zooph.* No. 319.
Cabblia. *Faun. Suec.* No. 398.

THIS fiſh is found only in the northern part of the world; it is, as *Rondeletius* calls it, an ocean fiſh, and never met with in the *Mediterranean* ſea*. It affects cold climates, and ſeems confined between the latitudes 66 and 50: what are caught north and ſouth of thoſe degrees being

* None (ſays Captain *Armſtrong* in his hiſtory of *Minorca*) of the *Aſelli* or cod fiſh kind, frequent our ſhores. *p.* 163.

either

either few in quantity, or bad in quality. The *Greenland* fiſh are ſmall and emaciated through want of food, being very voracious, and having in thoſe ſeas a dearth of proviſion.

This locality of ſituation is common to many other ſpecies of this genus, moſt of them being inhabitants of the cold ſeas, or ſuch that lie within zones that can juſt clame the title of temperate. There are nevertheleſs certain ſpecies found near the *Canary Iſlands*, called *Cherny* *, of which we know no more than the name; but according to the unfortunate Captain *Glaſs*, are better taſted than the *Newfoundland* kind.

The great rendezvouz of the cod fiſh is on the Banks of *Newfoundland*, and the other ſand banks that lie off the coaſts of *Cape Breton*, *Nova Scotia*, and *New England*. They prefer thoſe ſituations, by reaſon of the quantity of worms produced in thoſe ſandy bottoms, which tempt them to reſort there for food: but another cauſe of the particular attachment the fiſh have to theſe ſpots, is their vicinity to the polar ſeas, where they return to ſpawn; there they depoſe their roes in full ſecurity, but want of food forces them, as ſoon as the firſt more ſouthern ſeas are open, to repair thither for ſubſiſtence.

Few are taken north of *Iceland*, but on the ſouth and weſt coaſts they abound: they are again found

* *Hiſt. Canary Iſlands*, 198.

to

to ſwarm on the coaſts of *Norway*, in the *Baltic*, off the *Orkney* and the *Weſtern Iſles*; after which their numbers decreaſe, in proportion as they advance towards the ſouth, when they ſeem quite to ceaſe before they reach the mouth of the Straits of *Gibraltar*.

Before the diſcovery of *Newfoundland*, the greater fiſheries of cod were on the ſeas of *Iceland*, and off our *Weſtern Iſles*, which were the grand reſort of ſhips of all the commercial nations; but it ſeems that the greateſt plenty was met with near *Iceland*. The *Engliſh* reſorted thither before the year 1415: for we find that *Henry* V. was diſpoſed to give the King of *Denmark* ſatisfaction for certain irregularities committed on thoſe ſeas by his ſubjects. In the reign of *Edward* the IV. the *Engliſh* were excluded from the fiſhery by treaty; and forbidden to reſort there under pain of forfeiture of life and goods. Notwithſtanding this, our monarch afterwards gave licence to a ſhip of *Hull* to ſail to *Iceland*, and there relade fiſh and other goods, without regard to any reſtrictions to the contrary. Our right in later times was far from being confirmed, for we find Queen *Elizabeth* condeſcending to aſk permiſſion to fiſh in thoſe ſeas from *Chriſtian* the IV. of *Denmark*, yet afterwards ſhe ſo far repented her requeſt, as to inſtruct her embaſſadors to that court, to inſiſt on the right of a free and univerſal fiſhery *. How far ſhe ſucceeded, I do

* *Rymer's Fœd.* XVI. 275, 425.

not

Sample 24

Cl
no
suc
hu
fish
fro
Der
mu
beg
seas
the
thu
Sp
Po
Fr
En
B
mer
here
ome
ng f
Engl
T
ertil
y ft
e ef
ealt

not know: but it appears, that in the reign of her ſucceſſor, our countrymen had not fewer than a hundred and fifty ſhips employed in the *Iceland* fiſhery. I ſuppoſe this indulgence might ariſe from the marriage of *James* with a Princeſs of *Denmark*.

But the *Spaniſh*, the *French*, and the *Bretons*, had much the advantage of us in all fiſheries at the beginning, as appears by the ſtate of that in the ſeas of *Newfoundland* in the year 1578*, when the number of ſhips belonging to each nation ſtood thus:

Spaniards, 100, beſides 20 or 30 that came from *Biſcaie*, to take whale for train, being about five or ſix thouſand tons.

Portugueſe, 50, or three thouſand tons.

French and *Bretons*, 150, or ſeven thouſand tons.

Engliſh, from 30 to 50.

But Mr. *Anderſon*, in his Dictionary of Commerce, I. 363, ſays, that the *French* began to fiſh here ſo early as 1536; and we think we have ſomewhere read, that their firſt pretence for fiſhing for cod in thoſe ſeas, was only to ſupply an *Engliſh* convent with that article.

The encreaſe of ſhipping that reſort to thoſe fertile banks, are now unſpeakable: our own country ſtill enjoys the greateſt ſhare, which ought to be eſteemed our chiefeſt treaſure, as it brings wealth to individuals, and ſtrength to the ſtate.

* *Hackluyt's Coll. Voy.* III. 132.

All

All this immenſe fiſhery is carried on by the hook and line only *; the bait is herring, a ſmall fiſh called a *Capelin*, a ſhell fiſh called *Clams*, and bits of ſea fowl; and with theſe are caught fiſh ſufficient to find employ for near fifteen thouſand *Britiſh* ſeamen, and to afford ſubſiſtence to a much more numerous body of people at home, who are engaged in the various manufactures which ſo vaſt a fiſhery demands.

Food. The food of the cod is either ſmall fiſh, worms, teſtaceous, or cruſtaceous animals, ſuch as crabs, large whelks, &c. and their digeſtion is ſo powerful, as to diſſolve the greateſt part of the ſhells they ſwallow. They are very voracious, and catch at any ſmall body they perceive moved by the water, even ſtones and pebbles, which are often found in their ſtomachs.

The Sounds. Fiſhermen are well acquainted with the uſe of the air-bladder or *ſound* of the cod, and are very dexterous in perforating this part of a live fiſh with a needle, in order to diſengage the incloſed air; for without this operation it could not be kept under water in the well-boats, and brought freſh to market. The *ſounds* of the cod ſalted is a delica-

* We have been informed that they fiſh from the depth of fifteen to ſixty fathoms, according to the inequality of the *Bank*, which is repreſented as a vaſt mountain, under water, above five hundred miles long, and near three hundred broad, and that ſeamen knew when they approach it by the great ſwell of the ſea, and the thick miſts that impend over it.

cy

cy often brought from *Newfoundland*. *Iſinglaſs* is also made of this part by the *Iceland* fiſhermen: as the proceſs may be of ſervice to inſtruct the natives of the North of *Scotland* where theſe fiſh are plentiful, I beg leave to give it in the Appendix, extracted from a uſeful paper on the ſubject, in the *Ph. Tr.* of 1773, by *Humphrey Jackſon*, Eſq. ISINGLASS.

Providence hath kindly ordained, that this fiſh, ſo uſeful to mankind, ſhould be ſo very prolific as to ſupply more than the deficiencies of the multitudes annually taken. *Leuwenhoek* counted nine millions three hundred and eighty-four thouſand eggs in a cod fiſh of a middling ſize, a number ſure that will baffle all the efforts of man, or the voracity of the inhabitants of the ocean to exterminate, and which will ſecure to all ages an inexhauſtible ſupply of grateful proviſion. VASTLY PROLIFIC.

In our ſeas they begin to ſpawn in *January*, and depoſite their eggs in rough ground, among rocks. Some continue in roe till the beginning of *April*. The cod fiſh in general recover quicker after ſpawning than any other fiſh, therefore it is common to take ſome good ones all the ſummer. When they are out of ſeaſon they are thin tailed and louſy, and the lice chiefly fix themſelves on the inſide of their mouths.

The fiſh of a middling ſize are moſt eſteemed for the table, and are choſen by their plumpneſs and roundneſs, eſpecially near the tail, by the depth of the ſulcus or pit behind the head, and by

the regular undulated appearance of the ſides, as if they were ribbed. The glutinous parts about the head loſe their delicate flavor after it has been twenty-four hours out of the water, even in winter, in which theſe and other fiſh of this genus are in higheſt ſeaſon.

Size. The largeſt that we ever heard of taken on our coaſts, weighed ſeventy-eight pounds, the length was five feet eight inches; and the girth round the ſhoulders five feet. It was taken at *Scarborough* in 1755, and was ſold for one ſhilling. But the general weight of theſe fiſh in the *Yorkſhire* ſeas, is from fourteen to forty pounds.

Descrip. This ſpecies is ſhort in proportion to its bulk, the belly being very large and prominent.

The jaws are of an equal length, at the end of the lower is a ſmall beard; the teeth are diſpoſed in the palate as well as jaws.

The eyes are large.

On the back are three ſoft fins; the firſt has fourteen, the two laſt nineteen rays a-piece. The ventral fins are very ſlender, and conſiſt but of ſix rays; the two firſt extending far beyond the other. It has two anal fins; the firſt conſiſting of twenty, the laſt of ſixteen rays.

The tail is almoſt even at the end: the firſt ray on each ſide is ſhort, and compoſed of a ſtrong bone.

The color of this fiſh is cinereous on the back and ſides, and commonly ſpotted with yellow: the belly

belly is white, but they vary much, not only in color* but in ſhape, particularly that of the head.

The ſide line is white and broad, ſtrait, till it reaches oppoſite the vent, when it bends towards the tail. SIDE LINE.

74. HADOCK.

Aigrefin, ou aigleſin. *Belon.* 118.
Tertia aſellorum ſpecies. *Rondel.* 277.
Tertia aſel. Sp. Egleſinus. *Geſner piſc.* 86.
Onos ſive aſinus veterum. *Turner epiſt. ad. Geſner.*
Aſellus minor, Schelfiſch. *Schonevelde.* 18.
Hadock. *Wil. Icth.* 170. *Raii ſyn. piſc.* 55.
Gadus dorſo tripterygio, ore cirrato, max. ſup. longiore, corpore albicante, cauda parum bifurca. *Arted. ſynon.* 36.
Gadus Æglefinus. G. tripterygius cirratus albicans, cauda biloba. *Lin. ſyſt.* 435.
Kolja. *Faun. Suec.* No. 306.
Gronov. Zooph. No. 321.

NAME.

OUR countryman *Turner* conjectured this ſpecies to have been the Ονος, or *Aſinus*, of the antients, and *Belon* that it was the Κριὸς, and the Προβατος of *Oppian*. We have carefully conſulted moſt of the antient naturaliſts, but cannot diſcover any marks by which we can determine the ſpecies they intended. The words† Ονος, ‡ *Aſinus*,

* Codlings are often taken of a yellow, orange, and even red color, while they remain among the rocks, but on changing their place aſſume the color of other cod fiſh.

† *Ariſt. Hiſt. an. Lib.* VIII. *c.* 15. *Oppian Halieut.* I. 151. III. 191.

‡ *Ovidii Halieut. Lin.* 131. *Plinii Lib.* IX. *c.* 16. 17.

Aſellus, * *Callarias*, and *Bacchus*, are familiarly applied to ſeveral of our ſpecies of cod fiſh by the more modern writers; yet the antients from whom they are borrowed, have not authorized the application to any particular kind, either by deſcription or any other method.

Different reaſons have been aſſigned for giving the name of ὄνος, or *Aſinus* to this genus, ſome imagining it to be from the color of the fiſh, others becauſe it uſed to be carried on the backs of aſſes to market; but we ſhall drop this uncertain ſubject, and proceed to what we have fuller aſſurance of.

SEASON. Large hadocks begin to be in roe the middle of *November*, and continue ſo till the end of *January*; from that time till *May* they are very thin tailed, and much out of ſeaſon. In *May* they begin to recover, and ſome of the middling-ſized fiſh are then very good, and continue improving till the time of their greateſt perfection. The ſmall ones are extremely good from *May* till *February*, and ſome even in *February*, *March*, and *April*, viz. thoſe which are not old enough to breed.

The fiſhermen aſſert, that in rough weather hadocks ſink down into the ſand and ooze in the bottom of the ſea, and ſhelter themſelves there till the ſtorm is over, becauſe in ſtormy weather they take none, and thoſe that are taken immediately

* *Lib. c.* 17.

ſmall

after a ſtorm are covered with mud on their backs.

In ſummer they live on young herrings and other ſmall fiſh; in winter on the ſtone-coated worms *, which the fiſhermen call *hadock meat*. FOOD.

The grand ſhoal of hadocks comes periodically on the *Yorkſhire* coaſts. It is remarkable that they appeared in 1766 on the 10th of *December*, and exactly on the ſame day in 1767: theſe ſhoals extended from the ſhore near three miles in breadth, and in length from *Flamborough* head to *Tinmouth* caſtle, and perhaps much farther northwards. An idea may be given of their numbers by the following fact: three fiſhermen, within the diſtance of a mile from *Scarborough* harbour, frequently loaded their *coble* or boat with them twice a-day, taking each time about a ton of fiſh: when they put down their lines beyond the diſtance of three miles from the ſhore, they caught nothing but dog fiſh, which ſhows how exactly theſe fiſh keep their limits. VAST SHOALS.

The beſt hadocks were ſold from eightpence to a ſhilling per ſcore, and the poor had the ſmaller ſort at a penny, and ſometimes a halfpenny per ſcore †.

The large hadocks quit the coaſt as ſoon as they

* A ſpecies of *Serpula*.

† Here Mr. *Travis*, to whom I am much obliged for a moſt accurate account of the *Yorkſhire* fiſh, with great humanity projects an inland navigation, to convey at a cheap and eaſy method, thoſe gifts of Providence to the thouſands of poor manufacturers who inhabit the diſtant parts of that vaſt county.

go out of ſeaſon, and leave behind great plenty of ſmall ones. It is ſaid that the large ones viſit the coaſts of *Hamburgh* and *Jutland* in the ſummer.

It is no leſs remarkable than providential, that all kinds of fiſh (except mackrel) which frequent the *Yorkſhire* coaſt, approach the ſhore, and as if it were offer themſelves to us, generally remaining there as long as they are in high ſeaſon, and retire from us when they become unfit for uſe.

It is the commoneſt ſpecies in the *London* markets.

DESCRIP. They do not grow to a great bulk, one of fourteen pounds being of an uncommon ſize, but thoſe are extremely coarſe; the beſt for the table weighing from two to three pounds.

The body is long, and rather more ſlender than thoſe of the preceding kinds: the head ſlopes down to the noſe: the ſpace between the hind part of the firſt dorſal fin is ridged: on the chin is a ſhort beard.

On the back are three fins reſembling thoſe of the common cod-fiſh: on each ſide beyond the gills is a large black ſpot. Superſtition aſſigns this mark to the impreſſion St. *Peter* left with his finger and thumb when he took the tribute out of the mouth of a fiſh of this ſpecies, which has been continued to the whole race of hadocks ever ſince that miracle.

The lateral line is black: the tail is forked.

The color of the upper part of this ſpecies is duſky

duſky or brown; the belly and lower part of the ſides ſilvery.

Irides ſilvery: pupil large and black.

Aſellus mollis latus. Mr. *Liſter apud Wil. Icth. App.* 22.
Whiting Pout, *Londinenſibus. Raii ſyn. piſc.* 55.
Gadus dorſo tripterygio, ore cirrato, longitudine ad latitudinem tripla, pinna ani prima officulorum triginta. *Arted. ſynon.* 37.
Gadus barbatus. G. tripterygius cirratus maxilla inferiore punctis utrinque ſeptem. *Lin. ſyſt.* 437. *Gronov. Zooph.* No. 320.
Sma-Torſk. *Faun. Suec.* No. 311.

75. POUT.

THIS ſpecies never grows to a large ſize, ſeldom exceeding a foot in length.

It is diſtinguiſhed from all others by its great depth; one of the ſize abovementioned being near four inches deep in the broadeſt part.

The back is very much arched, and carinated. The ſcales larger than thoſe of the cod fiſh. The mouth ſmall; the beard ſhort. On each ſide of the lower jaw are ſeven or eight punctures.

The firſt dorſal fin is triangular, and terminates in a long fibre: the color of the fins and tail black: at the bottom of the pectoral fins is a black ſpot.

The lateral line is white, broad, and crooked.

The tail is even at the end, and of a duſky color.

The color of the body is white, but more obſcure on the back than the belly, and tinged with yellow.

It is called at *Scarborough* a *Kleg*. It is a very delicate fiſh.

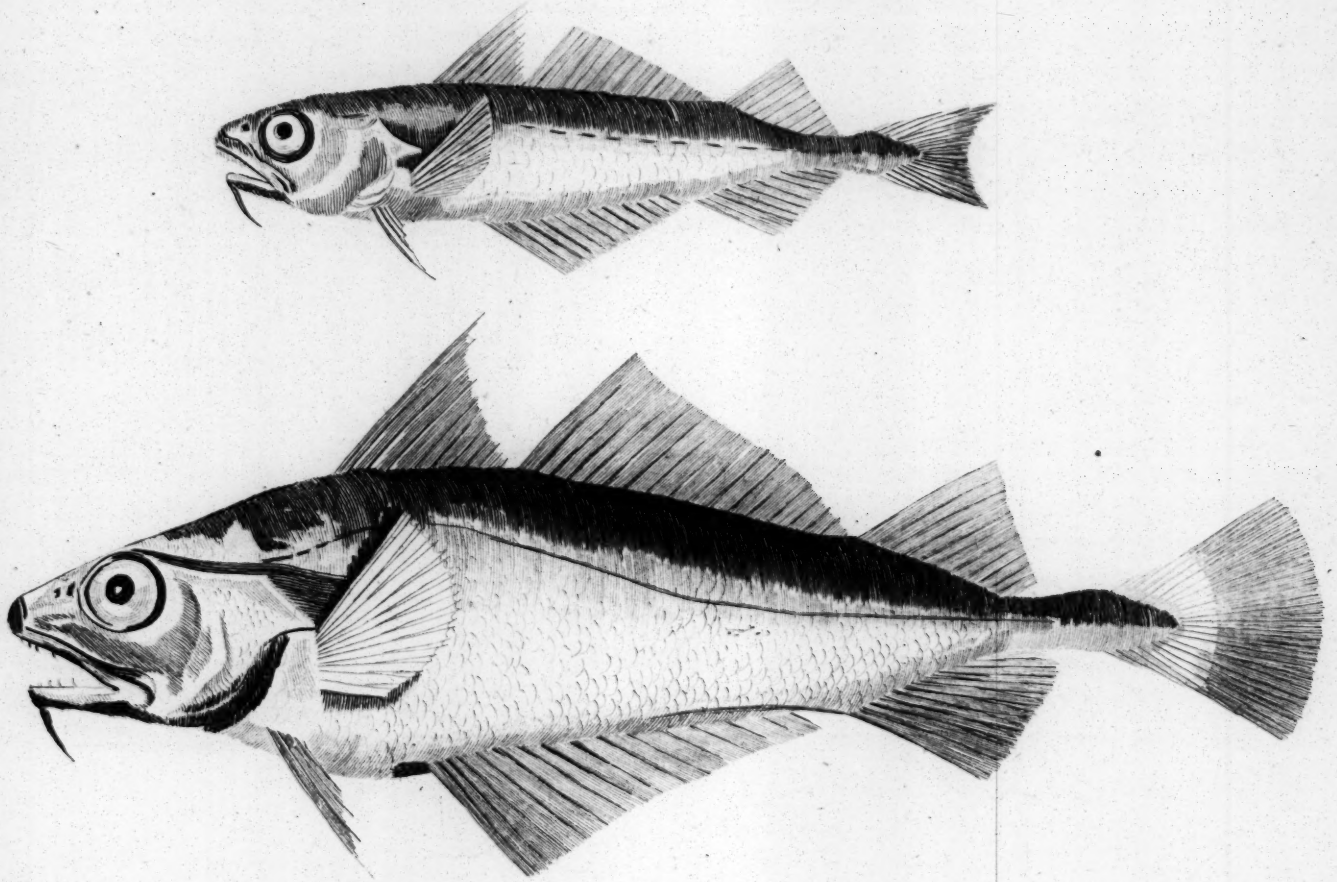
76. Bib.

Aſellus nanus, Dwergdorſch, Krumſtert? *Schonevelde*, 20.
Bib & Blinds *Cornubienſibus*. *Wil. Icth.* 169.
Aſellus luſcus. *Raii ſyn. piſc.* 54.
Gadus dorſo tripterygio, ore cirrato, oſſiculo pinnarum ventralium primo in longam ſetam producto. *Arted. ſynon.* 35.
Gadus luſcus. *Lin. ſyſt.* 437.

THIS ſpecies grows to the length of one foot. The greateſt depth three inches and a half. The ſcales are large, and ſo far from adhering to the ſkin, as is aſſerted by naturaliſts, are extremely deciduous.

The body is deep, the ſides compreſſed. The eyes covered with a looſe membrane, which it can blow up at pleaſure, like a bladder. The mouth is ſmall: beneath the chin a beard, an inch long.

In the firſt dorſal fin twelve rays: in the ſecond, which is longeſt, twenty-three: in the third, twenty. The pectoral fins about ſixteen: the ventral ſix or ſeven, of which the firſt ray is long, and ſetaceous:



BIB. No 76.

J Wilkinson del

P Mazell Sculp

ceous: the firſt anal fin has twenty-ſeven; the laſt twenty-one rays.

The back is of a light olive: the ſides finely tinged with gold: the belly white: the anal fins duſky, edged with pure white; the tail with black. COLOR.

77. POOR.

Le Merlan? *Belon*, 120.
Anthiæ ſecunda ſpecies. *Rondel.* 191. *Geſner piſc.* 56.
Aſellus mollis minor, ſeu aſellus omnium minimus. MOLLO *Venetiis*. CAPELAN *Maſſiliæ*. *Wil. Icth.* 171.
Poor or Power *Cornub.*
Mr. *Jago*. *Raii ſyn. piſc.* 163. *fig.* 6.
Gadus dorſo tripterygio, ore cirrato, corpore ſeſcunciali, ano in medio corporis. *Arted. ſynon.* 36.
Gadus minutus. *Lin. ſyſt.* 438.

THIS is the only ſpecies of cod fiſh with three dorſal fins that we (at this time) are aſſured is found in the *Mediterranean* ſea. It is taken near *Marſeilles*, and ſometimes in ſuch quantities as to become a nuſance; for no other kinds of fiſh are taken during their ſeaſon *. It is eſteemed good, but incapable of being ſalted or dried: *Belon* ſays, that when it is dried in the ſun, it grows as hard as horn; *C'eſt dela que les* ANGLOIS *l'ont nommé Bouclzs horn.*

It is the ſmalleſt ſpecies yet diſcovered, being little more than ſix inches long. DESCRIP.

On the chin is a ſmall beard: the eyes are co-

* *Rondel.* 191.

vered

vered with a looſe membrane: on the gill-covers, and the jaws are on each ſide, nine punctures.

The firſt dorſal fin has twelve rays; the ſecond nineteen; the third ſeventeen.

The pectoral fins thirteen; the ventral fins ſix: the firſt anal fin twenty-ſeven; the ſecond ſeventeen.

The color on the back is a light brown; on the belly a dirty white.

We owe the diſcovery of this kind in our ſeas to the Rev. Mr. *Jago*.

** Three dorſal fins: chin beardleſs.

78. COAL.

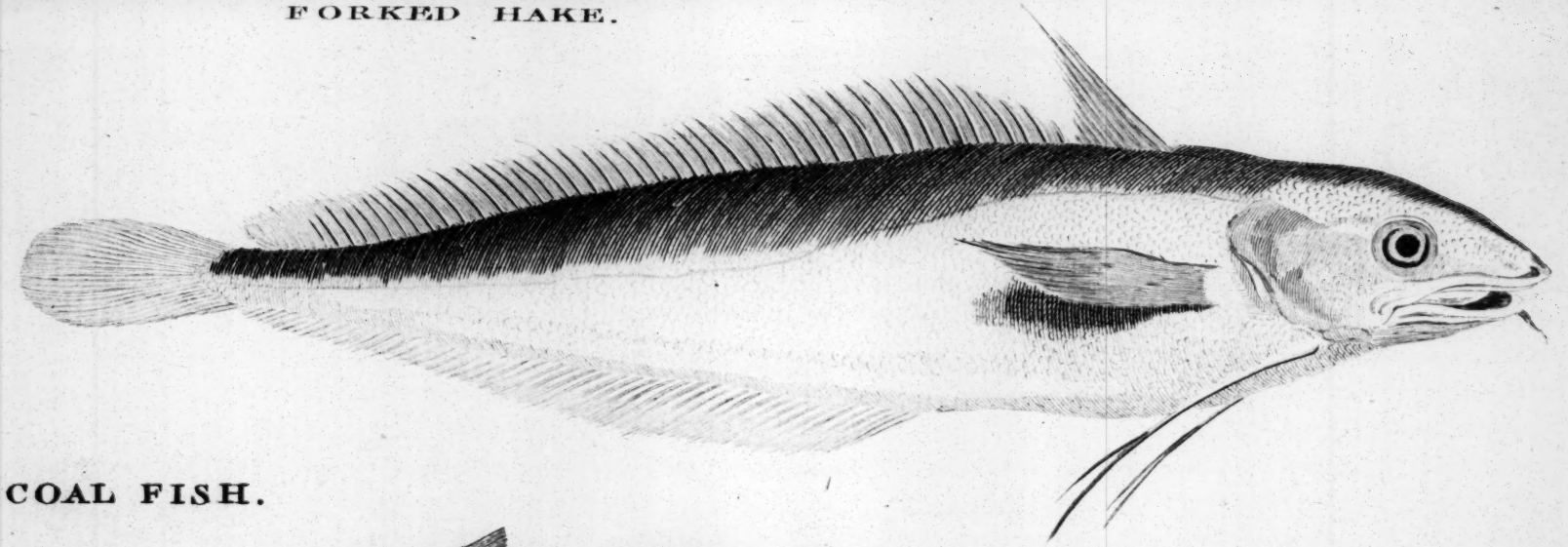
Colfiſch. *Belon*, 128.
Colfiſch *Anglorum*. *Geſner piſc.* 89.
Aſellus niger. Kolfiſch. Koler. *Schonevelde*, 19.
Cole fiſh *Septentrionalium anglorum*. Rawlin Pollack *Cornubienſium*. *Wil. piſc.* 168. *Raii ſyn. piſc.* 54.
Gadus dorſo tripterygio, ore imberbi, maxilla inferiore longiore et linea laterali recta. *Arted. ſynon.* 34.
Gadus carbonarius. *Lin. ſyſt.* 438. *Gronov. Zooph.* No. 317.

THE coal fiſh takes its name from the black color that it ſometimes aſſumes. *Belon* calls it the *Colfiſch*, imagining it was ſo named by the *Engliſh*, from its producing the *Icthyocolla*, but *Geſner* gives the true etymology.

Theſe

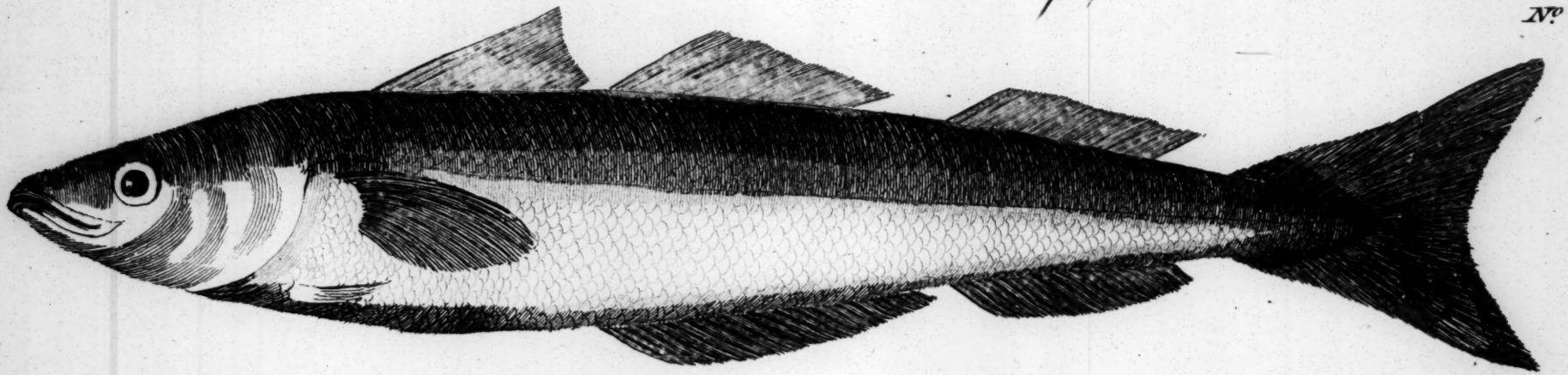
FORKED HAKE.

Nº 82.



COAL FISH.

Nº 78.



Theſe fiſh are common on moſt of our rocky and deep coaſts, but particularly thoſe of the north of *Great Britain.* They ſwarm about the *Orknies*, where the fry are the great ſupport of the poor.

The young begin to appear on the *Yorkſhire* coaſt the beginning of *July* in vaſt ſhoals, and are at that time about an inch and an half long. In *Auguſt* they are from three to five inches in length, and are taken in great numbers with the angling rod, and are then eſteemed a very delicate fiſh, but grow ſo coarſe when they are a year old that few people will eat them. Fiſh of that age are from eight to fifteen inches long, and begin to have a little blackneſs near the gills, and on the back, and the blackneſs encreaſes as they grow older. Young.

The fry is known by different names in different places: they are called at *Scarborough Parrs*, and when a year old, *Billets.* About nine or ten years ago ſuch a glut of *Parrs* viſited that part, that for ſeveral weeks it was impoſſible to dip a pail into the ſea without taking ſome.

Tho' this fiſh is ſo little eſteemed when freſh, yet it is ſalted and dried for ſale; a perſon laſt year having cured above a thouſand at *Scarborough.*

The coal fiſh is of more elegant form than the cod fiſh: they generally grow to the length of two feet and an half, and weigh about twenty-eight or thirty pounds at moſt. The head is ſmall; the under jaw a little longer than the upper: Deſcrip.

the

the irides ſilvery, marked on one ſide with a black ſpot.

It has three dorſal fins, the firſt conſiſts of fourteen, the next of twenty, the laſt of twenty-two rays.

The pectoral fins of eighteen; the ventral of ſix: the firſt anal fin of twenty-two, the ſecond of nineteen.

The tail is broad and forked.

Theſe fiſh vary in color. We have ſeen ſome whoſe back, noſe, dorſal fins and tail were of a deep black: the gill covers ſilver and black: the ventral and anal fins white; the belly of the ſame color.

We have ſeen others duſky, others brown, but in all the lateral line was ſtrait and white, and the lower part of the ventral and anal fins white.

79. POLLACK. Aſellus vireſcens, Schwartres Kolmulen. *Schonevelde*, 20.
Aſellus flaveſcens; Gelbe Kolmulen. *Ibid.*
Aſellus Huitingo-Pollachius. *Wil. Icth.* 167.
Whiting Pollack. *Raii ſyn. piſc.* 53.
Gadus dorſo tripterygio, ore imberbi, max. inf. longiore, linea laterali curva. *Arted. ſynon.* 35.
Gadus Pollachius. *Lin. ſyſt.* 439. *Gronov. Zooph.* No. 318.
Norwegis Scy. *Bahuſiis* Graſik? *Faun. Suec.* No. 309.

THIS ſpecies is common on many of our rocky coaſts: during ſummer they are ſeen in

in great ſhoals frolicking on the ſurface of the water, and flinging themſelves into a thouſand forms. They are at that time ſo wanton as to bite at any thing that appears on the top of the waves, and are often taken with a gooſe's feather fixed to the hook. They are a very ſtrong fiſh, being obſerved to keep their ſtation at the feet of the rocks in the moſt turbulent and rapid ſea.

They are a good eating fiſh: they do not grow to a very large ſize; at leſt the biggeſt we have ſeen did not exceed ſix or ſeven pounds: but we have heard of ſome that were taken in the ſea near *Scarborough*, which they frequent during winter, that weighed near twenty-eight pounds. They are there called *Leets*.

The under jaw is longer than the upper; the head and body riſes pretty high, as far as the firſt dorſal fin.

The ſide line is incurvated, riſing towards the middle of the back, then ſinking and running ſtrait to the tail; it is broad, and of a brown color.

The firſt dorſal fin has eleven rays, the middle nineteen, the laſt ſixteen: the tail is a little forked.

The color of the back is duſky, of ſome inclining to green: the ſides beneath the lateral line marked with lines of yellow; the belly white.

80. WHITING.

Secunda aſellorum ſpecies. *Rondel.* 276.
Merlanus. *Rondel. Geſner piſc.* 85.
Aſellus candidus primus, Witling. *Schonevelde*, 17.
Aſellus mollis major, ſeu albus. *Wil. Ich.* 170.
Whiting. *Raii ſyn. piſc.* 55.
Gadus dorſo tripterygio, ore imberbi corpore albo, max. illa ſuperiore longiore. *Arced. ſynon.* 34.
Gadus merlangus. *Lin. ſyſt.* 438. *Gronov. Zooph.* No. 316.
Hwitling, Widding. *Faun. Suec.* No. 310.

WHITINGS appear in vaſt ſhoals in our ſeas in the ſpring, keeping at the diſtance of about half a mile to that of three from the ſhore. They are caught in vaſt numbers by the line, and afford excellent diverſion.

They are the moſt delicate, as well as the moſt wholeſome of any of the genus, but do not grow to a large ſize; the biggeſt we ever ſaw* not exceeding twenty inches, but that is very uncommon, the uſual length being ten or twelve.

It is a fiſh of an elegant make: the upper jaw is the longeſt; the eyes large, the noſe ſharp, the teeth of the upper jaw long, and appear above the lower when cloſed.

The firſt dorſal fin has fifteen rays, the ſecond eighteen, the laſt twenty.

* We have been informed that whitings, from four to eight pounds in weight, have been taken in the deep water at the edge of the *Dogger-Bank*.

The

The color of the head and back is a pale brown; the lateral line white, and is crooked; the belly and ſides ſilvery; the laſt ſtreaked lengthways with yellow.

*** With only two dorſal fins.

81. HAKE.

Le Merluz. *Belon*, 115.
Aſellus, ὄνος, ὀνισιος. *Rondel.* 272.
Merlucius. *Geſner piſc.* 84.
Aſellus primus ſive Merlucius. *Wil. Icth.* 174.
The Hake. *Raii ſyn. piſc.*
Gadus dorſo dipterygio, maxilla inferiore longiore. *Arted. ſynon.* 36.
Gadus Merlucius. *Lin. ſyſt.* 439. *Faun. Suec.* No. 314. *Gronov. Zooph.* No. 315.

A FISH that is found in vaſt abundance on many of our coaſts, and of thoſe of *Ireland*. There was formerly a vaſt ſtationary fiſhery of *Hake* on the *Nymph Bank* off the coaſt of *Waterford*, immenſe quantities appearing there twice a year; the firſt ſhoal coming in *June*, during the *Mackrel* ſeaſon, the other in *September*, at the beginning of the *Herring* ſeaſon, probably in purſuit of thoſe fiſh: it was no unuſual thing for ſix men with hooks and lines to take a thouſand *Hake* in one night, beſides a conſiderable quantity of other fiſh. Theſe were ſalted and ſent to *Spain*, particularly

to

to *Bilboa*. * We are at this time uninformed of the ſtate of this fiſhery, but find that Mr. *Smith*, who wrote the hiſtory of the county of *Waterford*, complains even in his time (1746) of its decline. Many of the gregarious fiſh are ſubject to change their ſituations, and deſert their haunts for numbers of years, and then return again. We ſee, p. 102, how unſettled the *Baſking Shark* appears to be: Mr. *Smith* inſtances the loſs of the *Hadock* on the *Waterford* ſhores, where they uſed to ſwarm; and to our knowlege we can bring the capriciouſneſs of the herrings, which ſo frequently quit their ſtations, as another example.

Sometimes the irregular migration of fiſh is owing to their being followed and haraſſed by an unuſual number of fiſh of prey, ſuch as the ſhark kind.

Sometimes to deficiency of the ſmaller fiſh, which ſerved them as food.

And laſtly, in many places to the cuſtom of trawling, which not only demoliſhes a quantity of their ſpawn, which is depoſited in the ſand, but alſo deſtroys or drives into deeper waters numberleſs worms and inſects, the repaſt of many fiſh.

The hake is in *England* eſteemed a very coarſe fiſh, and is ſeldom admitted to table either freſh or ſalted †.

* *Smith's Hiſt. Waterford*, 261.

† When cured it is known by the name of *Poor John*.

The

DESCRIP.

These fish are from a foot and an half to near twice that length: they are of a slender make, of a pale ash color on their backs, and of a dirty white on their bellies.

Their head is flat and broad; the mouth very wide; the teeth very long and sharp, particularly those of the lower jaw.

The first dorsal fin is small, consisting of nine rays; the second reaches from the base of the former almost to the tail, and is composed of forty rays, of which the last are the highest: the pectoral fins have about twelve, the ventral seven: the anal thirty-nine.

The tail is almost even at the end.

82. FORKED.

Galee, claria marina. *Belon, Icth.* 205. *Raii syn. pisc.* 126. 75.
Phycis. *Rondel.* 186. *Gesner pisc.* 718.
Tinca marina. *Aldr. Wil.*
Phycis. *Arted. synon. App.* III.
Blennius Phycis. *Lin. syst.* 442.

THIS is the fish to which *Rondeletius* gives the name of *Phycis*, borrowing it from *Aristotle* and *Pliny*, who have not so sufficiently characterized it, as to enable us to judge what species they intended. It is found in the *Mediterranean* more frequently than in our seas, and we believe is the fish mentioned by Mr. *Armstrong*, and Doctor *Cleghorn**,

* *Armstrong*, 161. *Cleghorn*, 43.

in their hiſtories of *Minorca*, under the name of *Molio*, *Mollera*, and *Molle*. It is known on the coaſt of *Cornwall* by the name of the great forked beard *, where it was firſt diſcovered by Mr. *Jago*. We place it in this genus, as it has more the appearance of the cod fiſh kind, the hake eſpecially, than of the *Blenny*, into which genus *Linnæus* has flung it; we therefore have given this ſpecies the name of the *Forked Hake*.

The length of one that was taken on the *Flintſhire* ſhores was eleven inches and an half, its greateſt depth three inches; but according to Doctor *Borlaſe*, ſome grow to be above eighteen inches long.

The head ſloped down to the noſe in the ſame eaſy manner with others of this genus: the mouth large: beſides the teeth in the jaws was a triangular congeries of ſmall teeth in the roof of the mouth.

At the end of the lower jaw was a ſmall beard. The firſt dorſal fin was triangular; the firſt ray extended far beyond the reſt, and was very ſlender: the ſecond fin began juſt behind the firſt, and extended almoſt to the tail: the ventral fins were three inches long, and conſiſted of only two rays, joined at the bottom, and ſeparated or bifurcated towards the end: the vent was in the middle of the body: the anal fin extended from thence juſt

* *Barbus major* Cornubienſis *cirris bifurcatis*: the great forked beard. Mr. *Jago*. *Raii ſyn. piſc.* 163. *fig.* 7.

to the tail: the lateral line was incurvated: the tail was rounded.

The color was a cinereous brown.

Barbus minor *Cornubienſis* cirris bifurcis. The Leſſer Forked Beard. Mr. *Jago*. *Raii ſyn. piſc.* 164. *fig.* 8. 83. Lest.

WE never ſaw this ſpecies, and having but very imperfect deſcriptions of it, cannot with any certainty pronounce it to be of this genus, but are unwilling to ſeparate them, as we found them united by that judicious Icthyologiſt Mr. *Jago*.

It is ſaid not to exceed five inches in length: the firſt dorſal fin (in the print) is ſhorter than that of the preceding; the ſecond reſembles that of the other kind: the ventral fins bifurcated. It has a ſmall beard, and a rounded tail, but the head is ſhorter and more ſteep; the color black, the ſkin ſmooth, and the appearance diſagreeable.

(Gent. Mag. 1809 (June) p. 516. 714

84. TRIFURCATED.

THIS new ſpecies was communicated to me by the Reverend Mr. *Hugh Davies* of *Beaumaris*, and was taken near that place.

Its length was twelve inches: the color a deep brown; excepting the folding of the lips, which were ſnow white, giving it a ſtrange appearance.

The head depreſſed and very broad: eyes large: irides yellowiſh: mouth very wide, with irregular rows of incurvated teeth. In the roof of the mouth a ſemilunar congeries of teeth. No tongue.

From the ſetting on of the pectoral fins the body was compreſſed, but remarkably ſo, as it approached the tail, growing very ſlender near that part. On the beginning of the back was a *ſulcus*, in which was the rudiment of a firſt dorſal fin; the ſecond reached almoſt to the tail, and the anal correſponded. Above the pectoral fins, on each ſide, was a row of tubercles from which commenced the lateral line, which was (midway) incurvated. The ventral fins were trifurcated: the tail rounded.

In a prone ſituation this fiſh made a ſtrange appearance, ſo is repreſented in that as well as another attitude.

Ling

Pl. XXII.

TRIFURCATED HAKE.

Crab

If a crab is forcibly driven into the claw of a crab the muscular power in the effort to get rid of the foreign object of the limb. The silly fishermen say that the crab knows it is safe to be the best part of the day when it can cast off its claw to deprive the captor of the delicate morsel

In other cases the animal exerts this power with more judgment. When reproduction takes place only from a joint

From the Trans[ac]t. of Curiosities in Animal Kingdom in Athenaeum 1833 p 295

The long legged spider will frequently throw off a leg, which if previously laid hold of immediately throws off. If ever reproduced

Ling, Lingfiſche. *Belon*, 130. *Geſner piſc.* 95.
Molva major *Charleton ex. piſc.* 3.
Aſellus longus, eine Lenge. *Schonevelde*, 18.
Ling. *Wil. Icth.* 175. *Raii ſyn. piſc.* 56.
Gadus dorſo dipterygo, ore ſerrato, maxilla ſuperiore longiore. *Arted. ſynon.* 36.
Gadus molva. *Lin. ſyſt.* 439.
Langa. *Faun. Suec.* No. 313.

85. LING.

THE ling takes its name from its length, being corrupted from the word *long*. It abounds about the *Scilly Iſles*, on the coaſts of *Scarborough*, and thoſe of *Scotland* and *Ireland*, and forms a conſiderable article of commerce *.

In the *Yorkſhire* ſeas they are in perfection from the beginning of *February* to the beginning of *May*, and ſome till the end of that month. In *June* they ſpawn, depoſiting their eggs in the ſoft oozy ground of the mouth of the *Tees*: at that time the males ſeparate from the females, and reſort to ſome rocky ground near *Flamborough Head*, where the fiſhermen take great numbers without ever finding any of the female or roed fiſh among them.

OIL.

While a ling is in ſeaſon its liver is very white, and abounds with a fine flavored oil; but as ſoon

* This branch of trade was conſiderable ſo long ago as the reign of *Edward* III. an act for regulating the price of *Lob*, *Ling*, and *Cod*, being made in his 31ſt year.

as the fiſh goes out of ſeaſon, the liver becomes red as that of a bullock, and affords no oil. The ſame happens to the cod and other fiſh in a certain degree, but not ſo remarkably as in the ling. When the fiſh is in perfection, a very large quantity of oil may be melted out of the liver by a ſlow fire, but if a violent ſudden heat be uſed for that purpoſe, they yield very little. This oil, which nature hoards up in the cellular membranes of fiſhes, returns into their blood, and ſupports them in the engendring ſeaſon, when they purſue the buſineſs of generation with ſo much eagerneſs as to neglect their food.

Vaſt quantities of ling are ſalted for exportation, as well as for home conſumption. When it is cut or ſplit for curing, it muſt meaſure twenty-ſix inches or upwards from the ſhoulder to the tail; if leſs than that it is not reckoned a ſizeable fiſh, and conſequently not entitled to the bounty on exportation; ſuch are called *Drizzles*, and are in ſeaſon all ſummer.

Descrip. The uſual ſize of a ling is from three to four feet; but we have heard of one that was ſeven feet long.

The body is very ſlender; the head flat; the upper jaw the longeſt; the teeth in that jaw ſmall and very numerous; in the lower, few, ſlender, and ſharp: on the chin is a ſmall beard.

The firſt dorſal fin is ſmall, placed near the head, and conſiſts of fifteen rays: the ſecond is very long, reaching

reaching almoſt to the tail, and conſiſts of ſixty-five rays: the pectoral fins have fifteen radiated rays; the ventral fins ſix; the anal ſixty-two: the tail is rounded at the end.

Theſe fiſh vary in color, ſome being of an olive hue on the ſides and back, others cinereous; the belly white. The ventral fins white: the dorſal and anal edged with white. The tail marked near the end with a tranſverſe black bar, and tipt with white.

86. BURBOT.

Strinſias, ou Botatriſſa. *Belon*, 300.
Lota. *Rondel. fluviat.* 165. *Geſner piſc.* 599.
Quappen, Elff-quappen, Tider-quappen, Truſchen? *Schonevelde*, 49.
Burbot, or Bird-bolt. *Plot Staff.* 241. *Tab.* 22. *fig.* 4.
Muſtela fluviatilis noſtratibus
Eel-pout. *Wil. Icth.* 125. *Raii ſyn. piſc.* 67.
Aal-rutte, Rutte. *Kram.* 388.
Gadus dorſo dipterygio, ore cirrato, maxillis æqualibus. *Arted. ſynon.* 38.
Gadus Lota. *Lin. ſyſt.* 440. *Gronov. Zooph.* No. 97.
Lake. *Faun. Suec.* No. 113.

PLACE.

THIS fiſh is found in the *Trent*, but in greater plenty in the river *Witham*, and in the great *Eaſt Fen* in *Lincolnſhire*. It is a very delicate fiſh for the table, though of a diſguſting appearance when alive. It is very voracious, and preys on the fry and leſſer fiſh. It does not often take a bait, but is generally caught in weels.

It abounds in the lake of *Geneva*, where it is call-

ed *Lota*, and it is alſo met with in the *Lago Maggiore*, and *Lugano*.

DESCRIP. The largeſt that we ever heard was taken in our waters weighed between two and three pounds, but abroad they are ſometimes found of double that weight.

Their body has ſome reſemblance to that of an eel, only ſhorter and thicker, and its motions alſo reſemble thoſe of that fiſh: they are beſides very ſmooth, ſlippery, and ſlimy.

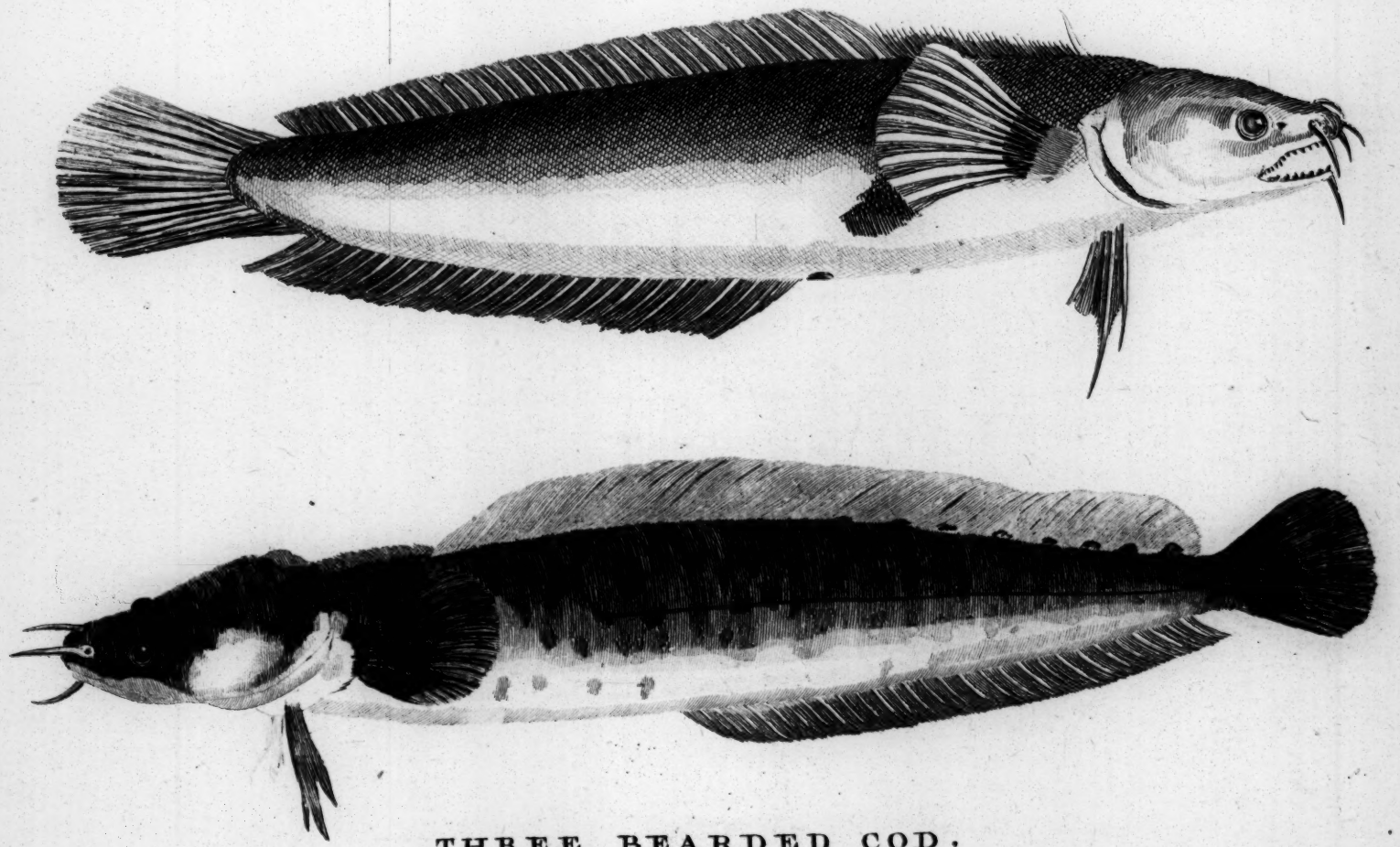
The head is very ugly, being flat, and ſhaped like that of a toad: the teeth are very ſmall, but numerous: the irides yellow.

On the end of the noſe are two ſmall beards; on the chin another: the number of its branchioſtegous rays are ſeven.

The firſt dorſal fin is ſhort: the ſecond is placed immediately behind it, and extends almoſt to the tail: the pectoral fins are rounded: the ventral fins conſiſt of ſix rays, of which the two firſt are divided near their ends from each other: the vent is placed in the middle of the belly, and the anal fin reaches almoſt to the tail: the tail is rounded at the end.

COLOR. The color of this ſpecies varies; ſome are duſky, others of a dirty green, ſpotted with black, and oftentimes with yellow, and the belly in ſome is white; but the real colors are frequently concealed by the ſlime.

FIVE BEARDED COD.



THREE BEARDED COD.

N.° 87

Muſtella vulgaris. *Rondel.* 281. *Geſner piſc.* 89. Sea Loche *Ceſtriæ*, Whiſtle fiſh *Cornubiæ*. *Wil. Icth.* 121. *Raii ſyn. piſc.* 67. Rockling, Mr. *Jago*. *Raii ſyn. piſc.* 164. *fig.* 9.

87. THREE BEARDED.

THIS ſpecies commonly frequents the rocky ſhores of theſe iſlands, and is ſometimes taken with a bait.

It grows to the length of nineteen inches; the weight two pounds two ounces: the head is large and flat: the eyes not remote from the end of the noſe: the body is long, ſlender, and compreſſed ſideways, eſpecially towards the tail: at the end of the upper jaw are two beards; on the chin one.

The teeth are numerous and ſmall, diſpoſed along the jaws in form of a broad plate: in the roof of the mouth is a ſet of ſmall teeth, diſpoſed in a triangular form.

The number of branchioſtegous rays is ſeven.

The firſt dorſal fin is lodged in a deep furrow juſt beyond the head, and conſiſts of a number of ſhort unconnected rays: the ſecond riſes juſt behind it, and reaches very near the tail: the pectoral fins are broad and round: the ventral fins ſmall; the ſecond ray the longeſt: the anal fin reaches almoſt to the tail: the tail rounded at the end.

The ſcales are very ſmall: the color of the body and head a reddiſh yellow, marked above the lateral line

line with large black ſpots: the back fin and tail are darker; the vent fin of a brighter red, but all are ſpotted. The lateral line bends in the middle, then paſſes ſtrait to the tail.

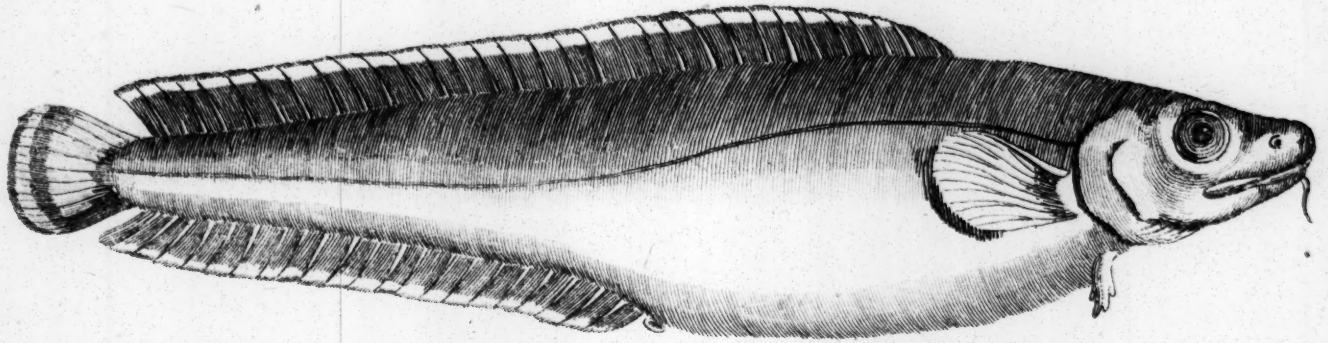
88. FIVE BEARDED. Gadus dorſo dipterygio, ſulco magno ad pinnam dorſi primam, ore cirrato? *Arted. ſynon.* 37.
Gadus muſtela. G. dipterygius cirris 5, pinna dorſali priore exoleta. *Lin. ſyſt.* 440. *Gronov. Zooph.* No. 314.

MR. *Willughby* makes this ſpecies with five beards, a variety only of the former; but having opportunity of examining ſeveral ſpecimens, we muſt diſſent from his opinion, having always obſerved the number of the beards in the ſpotted kind not to exceed three, nor the number in the brown kind to be leſs than five. The firſt ray of the dorſal fin is very long. There is alſo ſome difference in the form as well as color, this ſpecies being rather thicker in proportion than the former.

Excepting theſe particulars, and the number of beards, there is a general agreement in the parts of both. The beards on the upper jaw are four, viz. two at the very end of the noſe, and two a little above them: on the end of the lower jaw is a ſingle one.

Theſe fiſh are of a deep olive brown, their belly whitiſh.

TORSK.



whitiſh. They grow to the ſame ſize as the former.

The *Corniſh* fiſhermen are ſaid to whiſtle, and make uſe of the words *Bod, Bod, vean*, when they are deſirous of taking this fiſh, as if by that they facilitated the capture. In the ſame manner the *Sicilian* fiſhermen repeat their *Mamaſſu di pajanu*, &c. when they are in purſuit of the *Sword Fiſh* *.

*** With only one dorſal fin.

89. TORSK.

THIS fiſh has been hitherto ſuppoſed to be of the ſection of this genus, which has three dorſal fins. The ſpecies known in *Sweden* by that name is included in that diviſion; and as ſuch I deſcribed it in the former edition from the account *Linnæus* has given us. But from the information of the Rev. Mr. *Low*, miniſter of *Birſa*, *Orkney*, who in 1774, made (at my requeſt) the voyage of the *Shetland* iſlands, I find the *Britiſh Torſk* to be totally different; and will occaſion the addition of a fourth diviſion in this genus.

The *Torſk* is deſcribed and engraven in Mr. *Strom*'s hiſtory of *Sondmoer*, under the ſame name. †

* *Vide p.* 162.

† *Eller Torſk*, p. 272. tab. I, fig. 19. and when dried. *Klip-fiſh*.

The

The figure agrees with that Mr. *Low* favoured me with.

The *Torſk*, or as it is called in the *Shetlands*, *Tuſk* and *Briſmak* is a northern fiſh; and as yet undiſcovered lower than about the *Orknies*, and even there it is rather ſcarce. In the ſeas about *Shetland*, it ſwarms, and forms (barrelled or dried) a conſiderable article of commerce.

The length of the ſpecimen, Mr. *Low* deſcribed for me, was twenty inches, the greateſt depth four and a half.

The head ſmall, the upper jaw a little longer than the lower: both jaws furniſhed with multitudes of ſmall teeth: on the chin was a ſmall ſingle beard: from the head to the dorſal fin was a deep furrow. The dorſal fin began within ſix inches from the tip of the noſe, and extended almoſt to the tail.

The pectoral fins ſmall, and rounded; the ventral ſhort, thick and fleſhy, ending in four *cirrhi*.

The belly from the throat grows very prominent: the anal fin was long, and reached almoſt cloſe to the tail, which is ſmall and circular. The number of rays could not be counted with accuracy by reaſon of their ſoftneſs, and the thickneſs of the ſkin: the ſide line ſcarcely diſcernible.

The color of the head duſky: the back and ſides yellow: belly white: edges of the dorſal, anal, and caudal fins white: the other parts duſky: the pectoral fins brown.

I flatter myſelf, that in a ſmall time, the pub-

lic

lic will receive from Mr. *Low*, a fuller account of this important fiſh, in a comprehenſive hiſtory of the iſlands of *Orkney*, and *Shetland*.

Head

XX. BLENNY *.

Head blunt at the end, and very ſteep.
Body ſmooth and ſlippery.
Teeth ſlender.
Body compreſſed ſideways.
Ventral fins conſiſting generally of only two united rays.
One dorſal fin.
Six branchioſtegous rays.

* With a creſted head.

90. Crested.

Adonis, ou exocetus. *Belon*, 219.
Galerita. *Rondel.* 204. *Geſner piſc.* 14, 17, 18.
Alauda criſtata, five Galerita. *Wil. Icth.* 134. *Raii ſyn. piſc.* 73.
Blennius criſta capitis tranſverſa cutacea. *Arted. ſynon.* 44.
Blennius Galerita. *Lin. ſyſt.* 441.

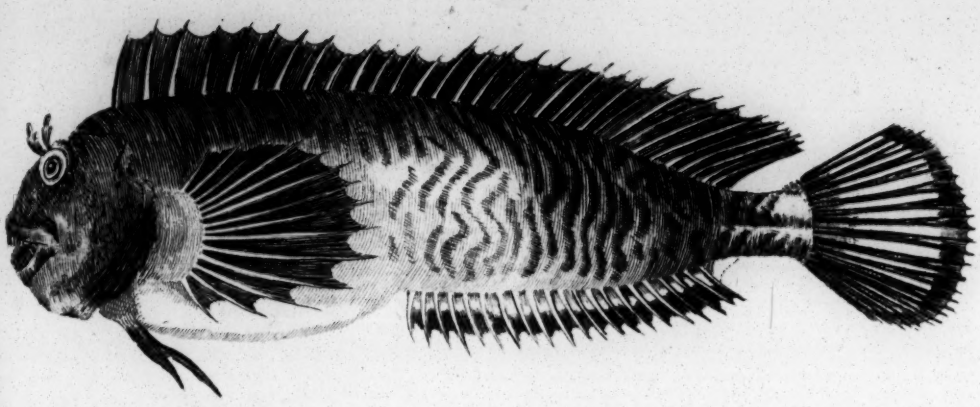
THIS ſpecies is found, though not frequently, on our rocky ſhores, and is commonly about four or five inches long.

On the head is a ſmall creſt-like fin, which it

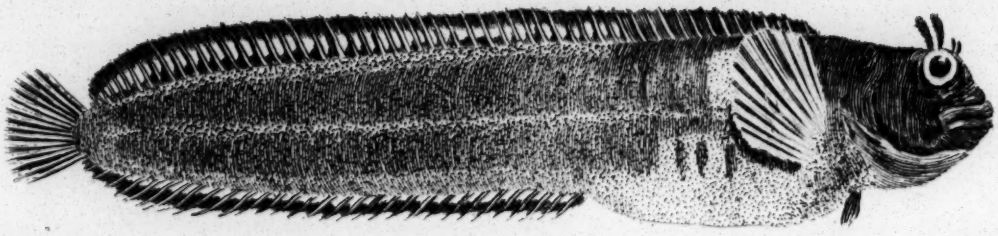
* There being no *Engliſh* name for this genus, *Blenny* is given it, derived from the word *Blennius*, the generical term uſed by *Artedius*, who forms it from Βλέννα *mucus*, it being of a ſlimy nature.

can

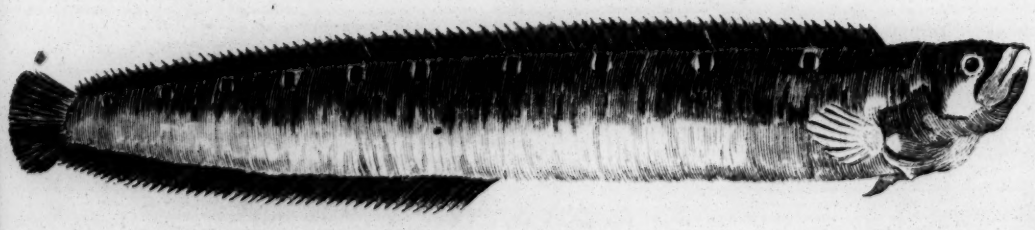
GATTORUGINE.



CRESTED BLENNY No. 90.



SPOTTED BLENNY. No. 93.



M. Griffiths del

can erect or depreſs at pleaſure. On the top of the head, between the eyes, is a triangular lump pointing backwards, and red about its edges.

The ſkin at the corner of the upper jaw is looſe, and projects.

From the hind part of the head, almoſt to the tail, extends the dorſal fin: the ventral fin is ſmall: the vent is placed under the ends of the pectoral fins.

The body is ſmooth and ſlippery: the color brown, and ſpotted.

Scorpioides. *Rondel.* 204. *Geſner piſc.* 847.
Gattorugine *Venetiis. Wil. Icth.* 132. *Raii ſyn. piſc.* 72.
Blennius pinnulis duabus ad oculos, pinna ani officulorum viginti trium. *Arted. ſynon.* 44.
Blennius Gattorugine. *Lin. ſyſt.* 442.

91. GATTORUGIN.

PLACE. THIS curious kind was diſcovered to be a *Britiſh* fiſh on the *Angleſea* coaſt.

DESCRIP. Its length was ſeven inches and an half: the body was ſmooth, and compreſſed on the ſides: the belly a little prominent: the vent ſituated as in the preceding fiſh.

The teeth ſlender, almoſt ſetaceous, and very cloſe ſet: between the eyes was a ſmall hollow, and above each, juſt on the ſummit, was a narrow looſe membrane, trifurcated at the top, which diſtinguiſhes this from all other ſpecies.

The

The pectoral fins broad and rounded, consisting of fourteen rays, which extend beyond the webs, making the edges appear scalloped.

The ventral fins like those of others of the genus: the dorsal fin consisted of fourteen strong spiny rays, and nineteen soft rays; the last of which were higher than the spiny rays.

The anal fin had twenty-one rays: the ends in every fin extending beyond their webs.

The tail was rounded at the end, and consisted of twelve rays, divided towards their extremities.

This fish in general was of a dusky hue, marked across with wavy lines: the belly of a light ash color.

The lower part of the pectoral fins, and the ends of the ventral fins, of an orange color.

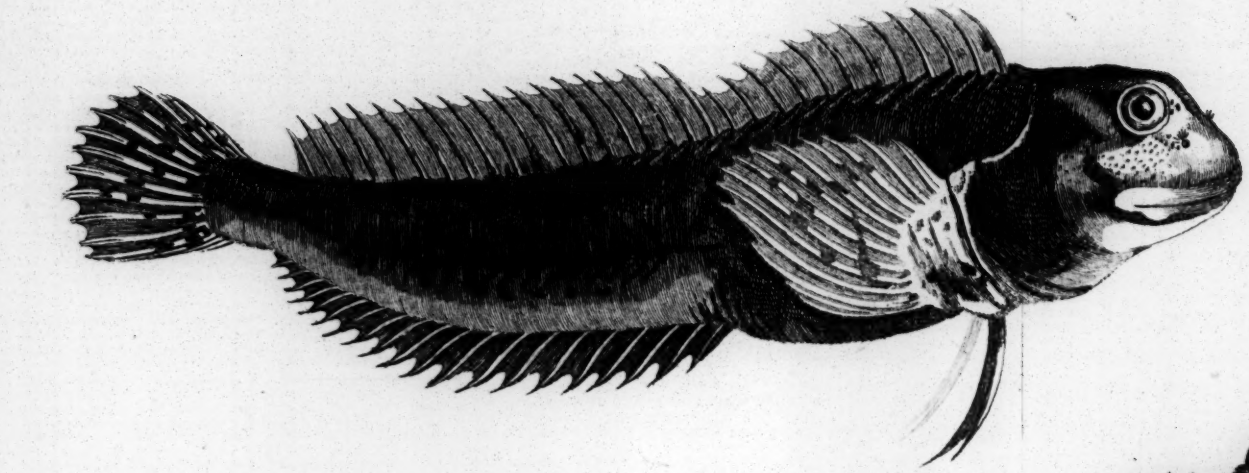
** With a smooth head.

92. Smooth.

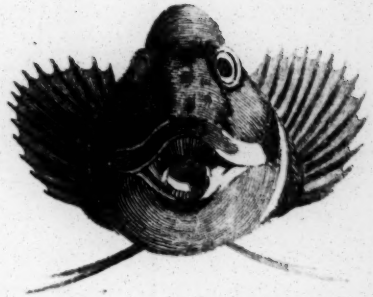
La tierce espece de Exocetus? *Belon*, 219.
Alauda non cristata. *Rondel.* 205. *Gesner pisc.* 18.
Mulgranoc, & Bulcard *Cornubiæ*. *Wil. Icth.* 133. *Raii syn. pisc.* 73.
Cataphractus lævis *Cornubiensis*, Smooth Shan. *Mr. Jago apud Raii syn. pisc.* 164. *fig.* 10.
Blennius maxilla superiore longiore, capite summo acuminato. *Arted. synon.* 45.
Blennius Pholis. *Lin. syst.* 443. *Gronov. Zooph. No.* 259.

Place. We discovered this species in plenty lying under the stones among the tang on the rocky

SMOOTH BLENNY.







P. Mazell sc.

rocky coaſts of *Angleſea*, at the lower water-mark. It was very active and vivacious, and would by the help of its ventral fins creep up between the ſtones with great facility. It bit extremely hard, and would hang at ones finger for a conſiderable time. It was very tenacious of life, and would live for near a day out of water.

It feeds on ſhells and ſmall crabs, whoſe remains we found in its ſtomach.

The length in general was five inches: the head large, and ſloping ſuddenly to the mouth: the irides red. DESCRIP.

The teeth ſlender, very ſharp, and cloſe ſet: there were twenty-four in the upper, and nineteen in the lower jaw.

The pectoral fins broad and rounded, conſiſting of thirteen rays: the ventral fins of only two thick rays, ſeparated near their ends.

The dorſal fin conſiſted of thirty-two ſoft rays, and reached from the hind part of the head almoſt to the tail.

The vent was in the middle of the body: the anal fin extended almoſt to the tail, and conſiſted of nineteen rays, tipt with white.

The tail rounded at the end, and compoſed of twelve branched rays.

The color varied, ſome were quite black, but generally they were of a deep olive, prettily marbled with a deeper color; others ſpotted with white:

the laſt often diſpoſed in rows above and beneath the lateral line.

93. SPOTTED. Gunnellus *Cornubienſium*, nonnullis *Butter-fiſh*, q. d. Liparis. *Wil. Ichth.* 115. *Raii ſyn. piſc.* 144.
Blennius maculis circiter decem nigris limbo albicante utrinque ad pinnam dorſalem. *Arted. ſynon.* 45.
Blennius Gunnellus. B. pinna dorſali ocellis X nigris. *Linn. ſyſt.* 443. *Faun. Suec.* No. 318.
Seb. Muſ. III. p. 91. *Tab.* 30. *fig.* 6.
Pholis maculis annulatis ad pinnam dorſalem, pinnis ventralibus obſoletis. *Gron. nov. Zooph.* No. 267.

THIS ſpecies is found in the ſame place with the preceding, lurking like it under ſtones, is equally vivacious, and is uſed as a bait for larger fiſh.

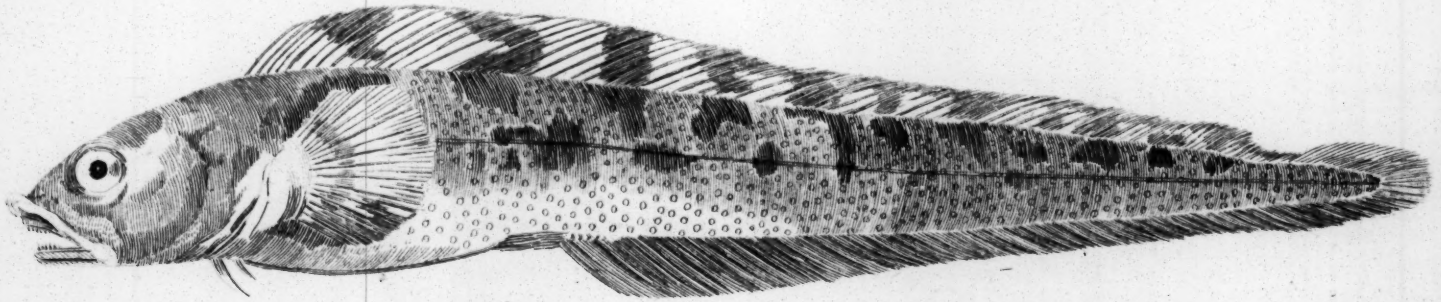
Its length is ſix inches: the depth only half an inch: the ſides very much compreſſed, and extremely thin.

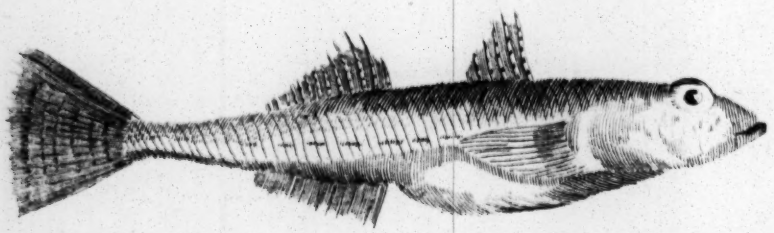
The head and mouth is ſmall; the laſt points upwards, and the lower jaw ſlopes conſiderably towards the throat.

The teeth are very ſmall; the irides whitiſh.

The pectoral fins rounded, and of a yellow color: inſtead of the ventral fins are two minute ſpines.

The dorſal fin conſiſts of ſeventy-eight ſhort ſpiny rays, and runs the length of the back almoſt to the tail: on the top of the back are eleven round ſpots, which







SPOTTED GOBY.

which reach the lower half of the dorſal fin; they are black, half encircled with white.

The vent is in the middle of the body; the anal fin extends from it almoſt to the tail.

The tail is rounded, and of a yellow color.

The back and ſides are of a deep olive: the belly whitiſh.

Muſtela marina vivipara, Ael-quappe, Ael-puet, Ael-moder. *Schonevelde*, 50. *Tab.* 4.

Guffer, Eelpout. *Sib. Scot.* III. 25.

Muſtela vivipara *Schoneveldii. Wil. Ich.* 122. *Raii ſyn. piſc.* 69.

Blennius capite dorſoque fuſco flaveſcente lituris nigris, pinna ani flava. *Arted. ſynon.* 45.

Blennius viviparus, B. ore tentaculis duobus. *Lin. ſyſt.* 443.

Tanglake. *Faun. Suec.* No. 317. *Muſ. Ad. Fr.* I. 69. *Tab.* 32.

Enchelyopus corpore lituris variegato; pinna dorſi ad caudam ſinuata. *Gronov. Zooph.* No. 265.

94. VIVIPAROUS.

SCHONEVELDE firſt diſcovered this ſpecies; Sir *Robert Sibbald* afterwards found it on the *Scotch* coaſts; and *Linnæus* has deſcribed it in his account of his *Swediſh* Majeſty's *Muſeum*.

They are viviparous, bringing forth two or three hundred young at a time. Their ſeaſon of parturition is a little after the depth of winter. Before *Midſummer* they quit the bays and ſhores, and retire into the deep, where they are commonly tak-

en. They are a very coarſe fiſh, and eat only by the poor.

They are common in the mouth of the river *Eſk*, at *Whitby*, *Yorkſhire*; where they are taken frequently from off the bridge.

They ſometimes grow to the length of a foot. Their form ſlender: their ſkin ſmooth and ſlippery. The teeth very minute and ſharp: the upper lip thin and ſkinny.

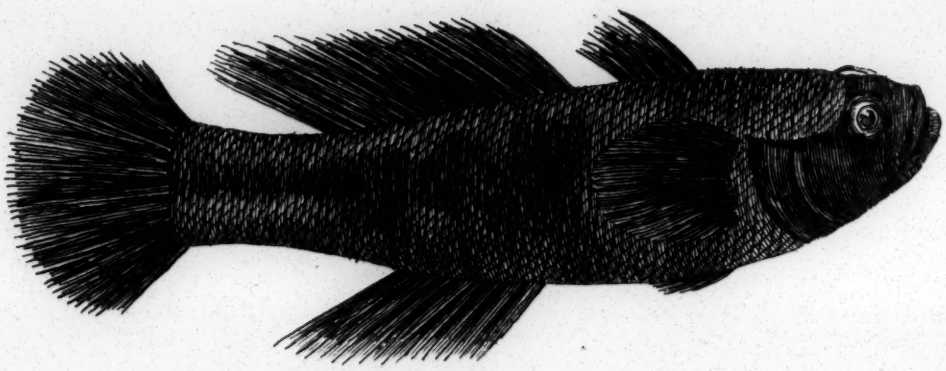
The dorſal fin commences juſt behind the head, and joins with that of the tail; but near the tail, the reſt are ſhort, ſo as to form the appearance of a diviſion. The pectoral fins rounded: the ventral conſiſt of only four ſhort rays: the anal extends far, and unites with the tail. The tail round.

The dorſal fin, back, and ſides are of a yellowiſh brown, ſtained with duſky ſpots and lines. The end of the tongue, the chin, throat, and anal fin of a fine yellow.

The back-bone is green, as that of a ſea-needle.

Pl. XXXVIII.

BLACK GOBY.



SECT. III. THORACIC FISH.

Eyes placed near each other.
Four branchioſtegous rays.
Ventral fins united.

XXI. GOBY*.

95. BLACK.

Gobio niger. *Rondel.* 200. *Geſner piſc.* 395.
Schwartzer Goeb. *Schoneveldе*, 36.
Sea Gudgeon. Rock-fiſh. *Wil. Ich.* 206. *Raii ſyn. piſc.* 76.
Gobius ex nigricante varius, pinna dorſi ſecunda officulorum quatuordecim. *Arted. ſynon.* 46.
Gobius niger. *Lin. ſyſt.* 449.
Eleotris capite cathetoplateo, pinnis ventralibus concretis. *Gronov. Zooph.* No. 281.

IT is to this fiſh that Naturaliſts have given the ſynonym of Κωβιος, and *Gobio*, names of certain ſpecies mentioned by *Ariſtotle*, *Pliny*, and *Oppian*. The two firſt have not left any characters for us to diſtinguiſh them by; and *Oppian* at once ſhews that he never intended this kind, as he has placed it among thoſe which are armed with a poiſonous ſpine. *Ariſtotle* was acquainted with two ſpecies; one a ſea fiſh that frequented the rocks, another that was gregarious, and an inha-

* Formed from *Gobius*, the generic name beſtowed by Naturaliſts on theſe fiſh.

bitant of rivers, which laſt ſeems to have been our common gudgeon.

DESCRIP. This ſpecies grows to the length of ſix inches: the body is ſoft, ſlippery, and of a ſlender form: the head is rather large; the cheeks inflated; the teeth ſmall, and diſpoſed in two rows: from the head to the firſt dorſal fin is a ſmall ſulcus.

The firſt dorſal fin conſiſts of ſix rays; the ſecond of fourteen; the pectoral fins of ſixteen or ſeventeen, cloſely ſet together, and the middlemoſt the longeſt; the others on each ſide gradually ſhorter.

The ventral fins coaleſce and form a ſort of funnel, by which theſe fiſh affix themſelves immoveably to the rocks, for which reaſon they are called *Rock-fiſh*.

The tail is rounded at the end.

The color is brown, or deep olive, mixed with dark ſtreaks, and ſpotted with black: the dorſal and anal fins are of a pale blue, the rays marked with minute black ſpots.

Aqua?

Aqua? *Athen. Lib.* VII. *p.* 284.
Aphia. *Belon*, 207.
Aphya cobites. *Rondel.* 210. *Geſner piſc.* 67. *Wil. piſc.* 207. *Raii ſyn. piſc.* 76.
Gobius Aphya et Marſio dictus. *Arted. ſynon.* 47.
Gobius Aphya. G. faſciis etiam pinnarum fuſcis. *Lin. ſyſt.* 450.

96. SPOTTED.

WE ſaw ſeveral of this ſpecies taken laſt ſummer on our ſandy ſhores in the ſhrimp nets. The length of the largeſt was not three inches: the noſe was blunt: the eyes large and prominent, ſtanding far out of the head: the irides ſappharine; the head flat; the tongue large; teeth in both jaws.

The firſt dorſal fin conſiſted of ſix rays; the ſecond of eleven, and placed at ſome diſtance from the other.

The ventral fins are united: the anal conſiſt of eleven rays: the tail is even at the end.

The body is of a whitiſh color, obſcurely ſpotted with ferruginous: the rays of the dorſal fins, and the tail, barred with the ſame color.

XXII. BULL-HEAD. Large flat head, armed with ſharp ſpines. Six branchioſtegous rays.

97. RIVER.

Boìτος. *Ariſt. Hiſt. an. Lib.* IV. *c.* 8.
Chabot. *Belon*, 213.
Cottus. *Rondel. Fluviat.* 202.
Gobio capitatus. *Geſner piſc.* 401.
Een Miiller. *Schwenckfelt Siles.* 431.
Bull-head, Miller's Thumb. *Wil. Icth.* 137. *Raii ſyn. piſc.* 76.
Cottus alepedotus glaber, capite diacantho. *Arted. ſynon.* 76.
Cottus Gobio. C. lævis, capite ſpinis duabus. *Lin. ſyſt.* 452.
Sten-ſimpa, Slagg-ſimpa. *Faun. Suec.* No. 323.
Koppe. *Kram.* 384. *Gronov. Zooph.* No. 270.

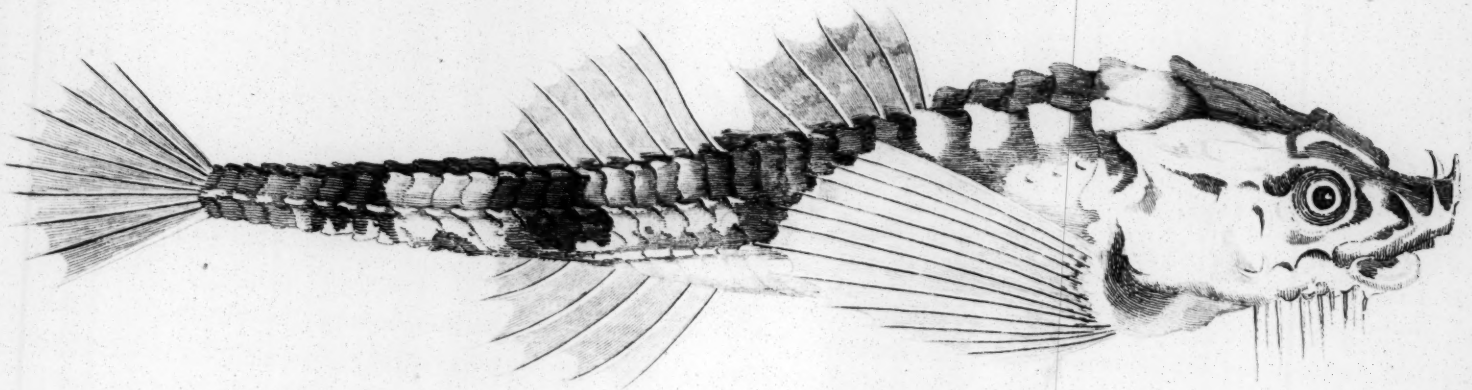
THIS ſpecies is very common in all our clear brooks; it lies almoſt always at the bottom, either on the gravel or under a ſtone: it depoſits its ſpawn in a hole it forms in the gravel, and quits it with great reluctance. It feeds on water inſects; and we found in the ſtomach of one the remains of the freſh water ſhrimp, the *pulex aquatilis* of *Ray*.

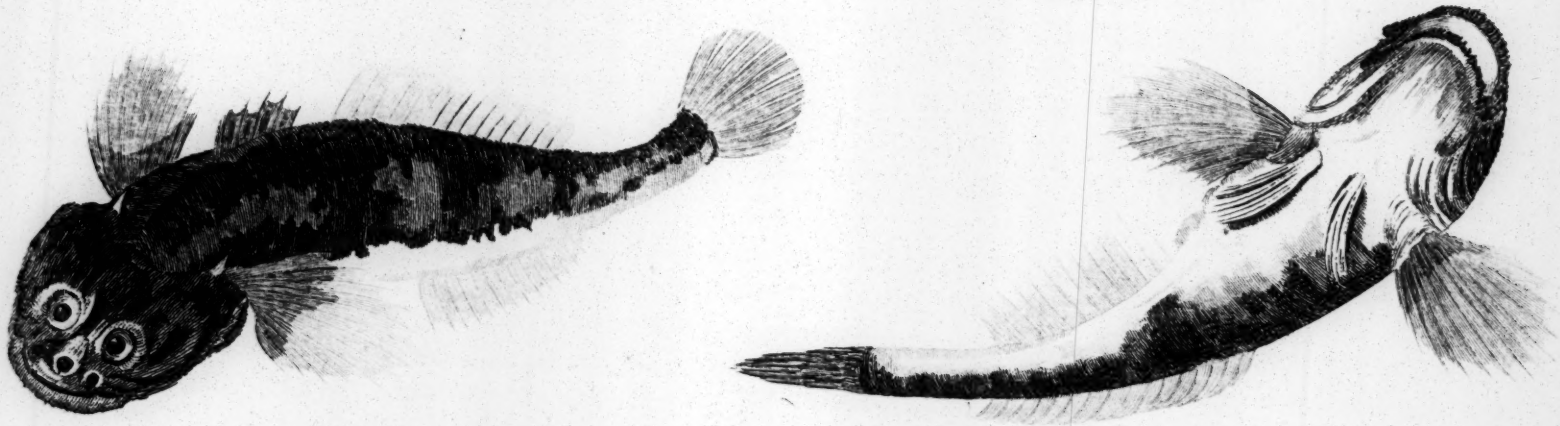
This fiſh ſeldom exceeds the length of three inches and an half: the head large, broad, flat, and thin at its circumference, being well adapted for inſinuating itſelf under ſtones: on the middle part of the covers of the gills is a ſmall crooked ſpine turning inwards.

The

ARMED BULL-HEAD.

N°98.





RIVER BULL-HEAD.

N° 97.

The eyes are very ſmall: the irides yellow: the teeth very minute, placed in the jaws and the roof of the mouth.

The body grows ſlender towards the tail, and is very ſmooth.

The firſt dorſal fin conſiſts of ſix rays, the ſecond of ſeventeen: the pectoral fins are round, and prettily ſcalloped at their edges, and are compoſed of thirteen rays; the ventral of only four; the anal of thirteen; the tail of twelve, and is rounded at the end.

The color of this fiſh is as diſagreeable as its form, being duſky, mixed with a dirty yellow: the belly whitiſh.

Cataphractus, Stein-bicker, Müller, Turſs-bull. *Schoneveldе*, 30. *Tab.* 3.
Cataphractus *Schoneveldii* Septentr. *Anglis* a Pogge. *Wil. Ich.* 211. *Raii ſyn. piſc.* 77.
Cottus cirris plurimis corpore octagono. *Arted. ſynon.* 77.
Cottus Cataphractus. C. loricatus, roſtro verrucoſo 2 bifidis, capite ſubtus cirroſo. *Lin. ſyſt.* 451.
Botn-mus. *Faun. Suec.* No. 324.
Seb. Muſ. III. *Tab.* 28. *Gronov. Zooph.* No. 271.

98. ARMED.

THE pogge is very common on moſt of the *Britiſh* coaſts.

It ſeldom exceeds five inches and an half in length, and even ſeldom arrives at that ſize.

The head is large, bony, and very rugged: the end of the noſe is armed with four ſhort upright ſpines:

ſpines: on the throat are a number of ſhort white beards.

The teeth are very minute, ſituated in the jaws.

The body is octagonal, and covered with a number of ſtrong bony cruſts, divided into ſeveral compartments, the ends of which project into a ſharp point, and form ſeveral echinated lines along the back and ſides from the head to the tail.

The firſt dorſal fin conſiſts of ſix ſpiny rays: the ſecond is placed juſt behind the firſt, and conſiſts of ſeven ſoft rays.

The pectoral fins are broad and rounded, and are compoſed of fifteen rays.

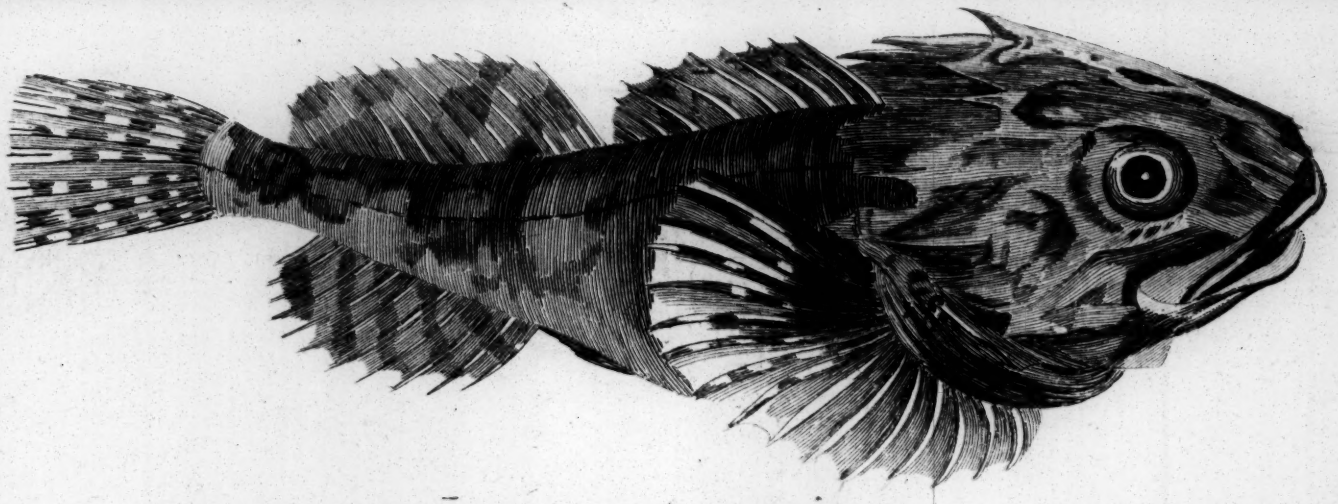
99. FATHER-LASHER.

Scorpios. *Ovid. Halieut.* 116.
La Scorpene. *Belon*, 242.
Scorpius marinus, Waelkuke, Buloffe, Schorp-fiſche. *Schonevelde*, 67. *tab.* 6.
Scorpænæ *Belonii* ſimilis *Cornub.* Father-laſher. *Wil. Icth.* 138. *Raii ſyn. piſc.* 145. Scorpius virginianus. *Idem.* 142. *Wil. Icth.* *App.* 25.
Cottus ſcorpius. C. capite ſpinis pluribus, maxilla ſuperiore paulo longiore. *Lin. ſyſt.* 452.
Rot-ſimpa, Skrabba, Skialryta. *Faun. Suec.* No. 323.
Ulke. *Crantz. Greenl.* I. 95. *Gronov. Zooph.* No. 268.
Sea Scorpion. *Edw.* 284.

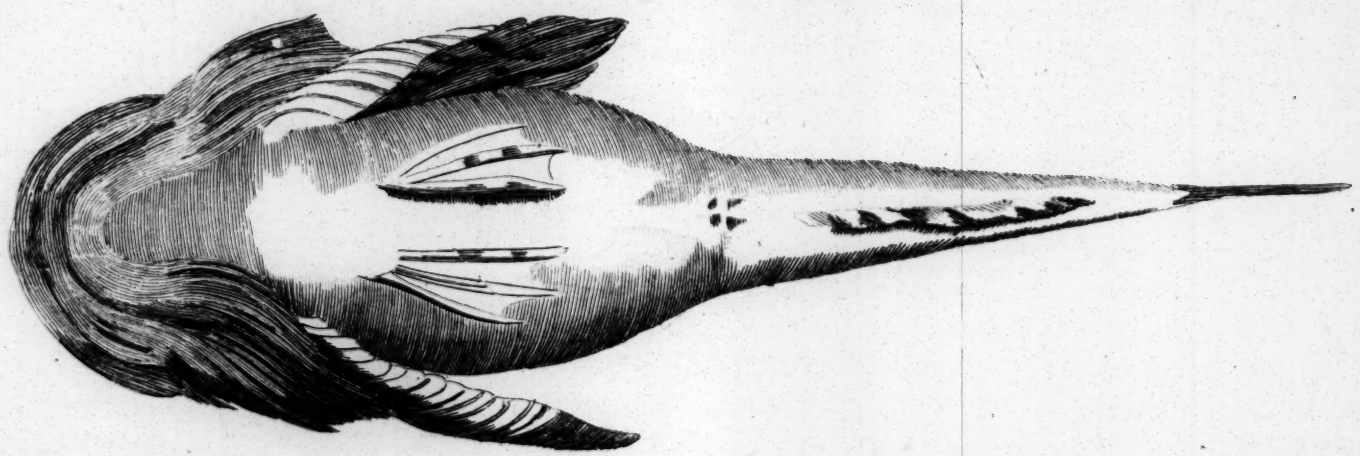
THIS fiſh is not uncommon on the rocky coaſts of this iſland: it lurks under ſtones, and will take a bait.

DESCRIP. It does not grow to a large ſize, ſeldom exceeding (as far as we have ſeen in the ſpecimens that are taken on our ſhores) eight or nine inches.

The



FATHER LASHER.



The head is very large, and has a moſt formidable appearance, being armed with vaſt ſpines, which it can oppoſe to any enemy that attacks it, by ſwelling out its cheeks and gill covers to a large ſize.

Et capitis duro nociturus Scorpios *ictu.*
The hurtful *Scorpion* wounding with its head.

SPINES. The noſe, and ſpace contiguous to the eyes, are furniſhed with ſhort ſharp ſpines: the covers of the gills are terminated by exceeding long ones, which are both ſtrong and very ſharp pointed.

The mouth is large: the jaws covered with rows of very ſmall teeth: the roof of the mouth is furniſhed with a triangular ſpot of minute teeth.

The back is more elevated than that of others of this genus: the belly prominent: the ſide-line rough, the reſt of the body very ſmooth, and grows ſlender towards the tail.

The firſt dorſal fin conſiſts of eight ſpiny rays; the ſecond of eleven high ſoft rays: the pectoral fins are large, and have ſixteen; the ventral three; the anal eight: the tail is rounded at the end, and is compoſed of twelve bifurcated rays.

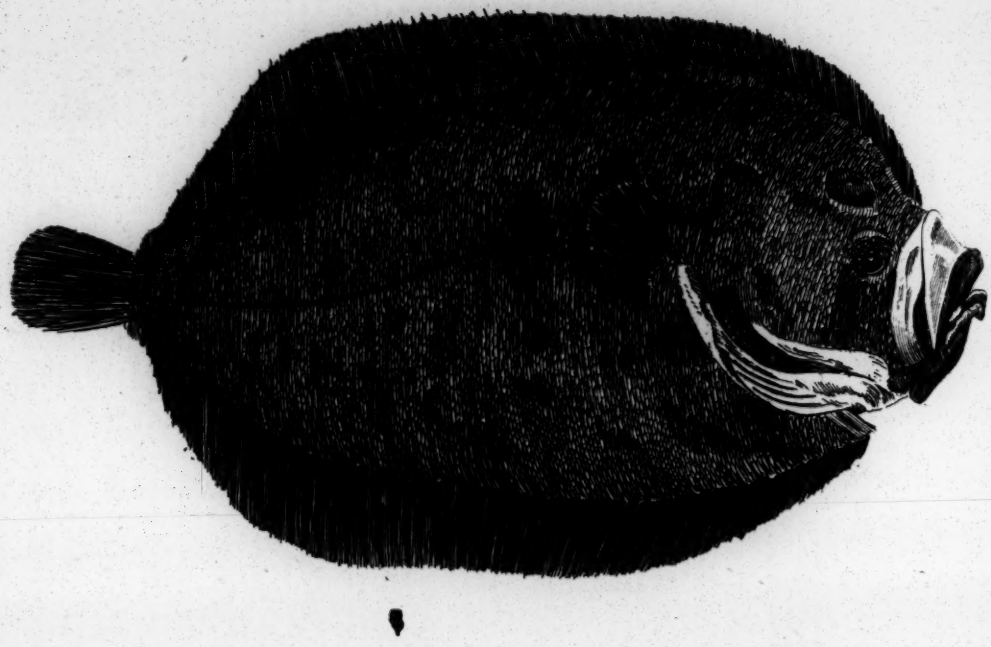
The color of the body is brown, or duſky and white marbled, and ſometimes is found alſo ſtained with red: the fins and tail are tranſparent, ſometimes clouded, but the rays barred regularly with brown: the belly is of a ſilvery white.

AMERICAN. This kind is very frequent in the *Newfoundland* ſeas,

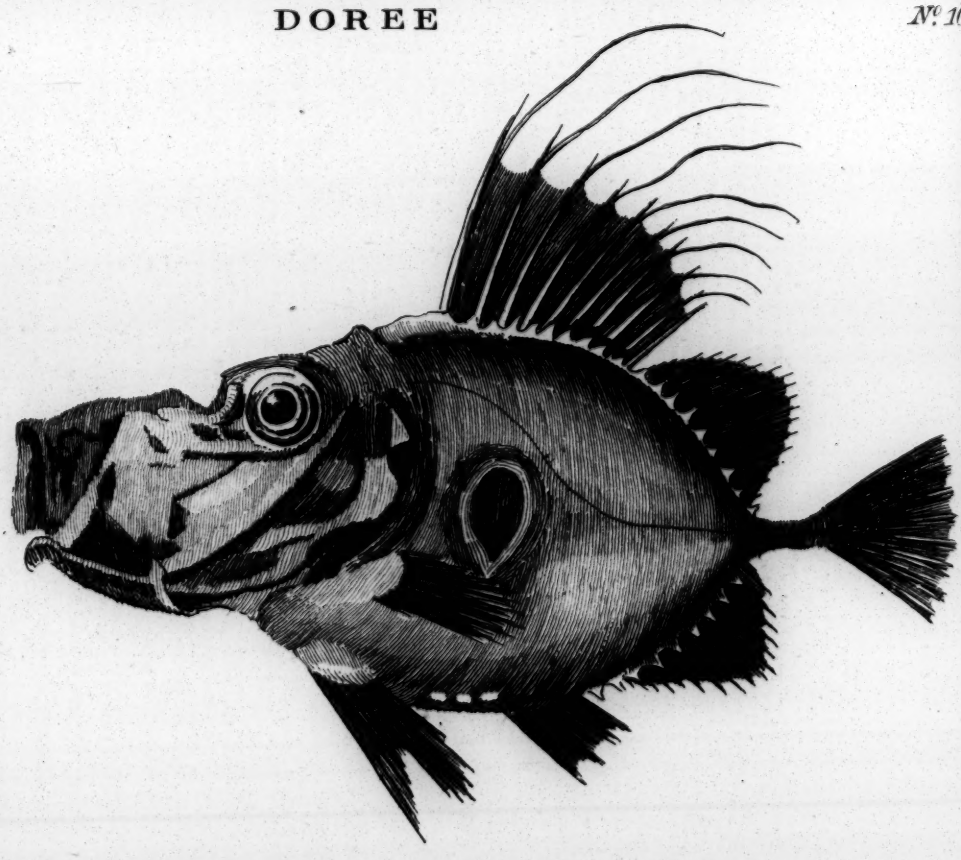
ſeas, where it is called *Scolping*: it is alſo as common on the coaſt of *Greenland* in deep water near ſhore. It is a principal food of the natives, and the ſoup made of it is ſaid to be agreeable as well as wholeſome.

Body

SMEAR DAB.



DOREE



Th. 1623 was read at the R. Soc. St Edward Home's paper
on Organs. Syrens: proofs of Sir Joseph Ayloffe's Letter
thereon, ord. Lent & Barnacle.
D. Wrenfield's receipt

Doley

Observanden p. 166.
Addenda p. 329. & Touchstone 109

Venetians
Sa = Spanish
= French
Saffetoys & Bayonne (meaning Jacques yellow,
& g. therefore if the expression "jaune doree" could
have been corrupted into John Doley? Spenser
Thos. Tod has also made this conjecture.

Commonly believed it was the fish caught by S. Peter at
command Victorious march the tribute money was found
between the impression of fingers left in the mouth
body. Hence they called S. Peters fish

Sparacards & Languedocians call it Gal from the
fish created a cockerel, & for the same
people of Saintonge & Rayonne call it Gall
The modern Greeks called S. Christophers Lord Xpo
because S. Christ. carried it on left wand of his finger
carrying Christ.

Bordelelius p. 329 (of the Fabel
French Rodel p. 263 (of the legend of
de S. Pierre

of the same name, i.e. acct of the Alexandrian
de Xenophon in Bibliotheca p. 115
Lond. 1808.

Berg in Greek Franciscan Church p. 36 [illegible]
Pierre, petite ou grande" Dict. Provençale

Body very deep, and compreſſed ſideways.
Very long filaments iſſuing from the firſt dorſal fin.
Seven branchioſtegous rays.

XXIII. DOREE.

Χαλκεὺς. *Athen. lib.* VII. 328.
Oppian Halieut. I. 133.
Faber? *Ovid Halieut.* 110.
Zeus idem Faber *Gadibus. Plin. lib.* IX. *c.* 18.
La Dorée. *Belon*, 146.
Faber ſive Gallus marinus. *Rondel.* 328. *Geſner piſc.* 369.
A Doree. *Wil. Icth.* 294. *Raii ſyn. piſc.* 99.
Zeus ventre aculeato, cauda in extremo circinato. *Arted. ſynon.* 78.
Zeus Faber. Z. cauda rotundata, lateribus mediis ocello fuſco, pinnis analibus duabus. *Lin. ſyſt.* 454. *Gronov. Zooph.* No. 311.
Zeus ſpinoſus. *Muſ. Fred. Ad.* 67. *tab.* XXXI.

100. DOREE.

SUPERSTITION hath made the *Doree* rival to the *Hadock*, for the honor of having been the fiſh out of whoſe mouth St. *Peter* took the tribute-money, leaving on its ſides thoſe inconteſtible proofs of the identity of the fiſh, the marks of his finger and thumb.

It is rather difficult at this time to determine on which part to decide the diſpute; for the *Doree* likewiſe aſſerts an origin of its ſpots of a ſimilar nature, but of a much earlier date than the former. St. *Chriſtopher* *, in wading through an arm of

* *Belon*, *Rondel*, alſo *Aldrovand de piſc.* 40. St. *Chriſtopher* was of a *Coloſſal* ſtature, as is evident from his image in the church

of the ſea, having caught a fiſh of this kind *en paſſant*, as an eternal memorial of the fact, left the impreſſions on its ſides to be tranſmitted to all poſterity.

In our own country it was very long before this fiſh attracted our notice, at leſt as an edible one. We are indebted to that judicious actor and *bon vivant* the late Mr. *Quin*, for adding a moſt delicious fiſh to our table, who overcoming all the vulgar prejudices on account of its deformity, has effectually eſtabliſhed its reputation.

Place. This fiſh was ſuppoſed to be found only in the ſouthern ſeas of this kingdom, but it has been diſcovered laſt year on the coaſt of *Angleſea*. Thoſe of the greateſt ſize are taken in the *Bay of Biſcay*, off the *French* coaſts: they are alſo very common in the *Mediterranean*; *Ovid* muſt therefore have ſtyled it *rarus Faber*, on account of its excellency, not its ſcarcity.

Descrip. The form of this fiſh is hideous: its body is oval, and greatly compreſſed on the ſides: the head large: the ſnout vaſtly projecting: the mouth very wide: the teeth very ſmall.

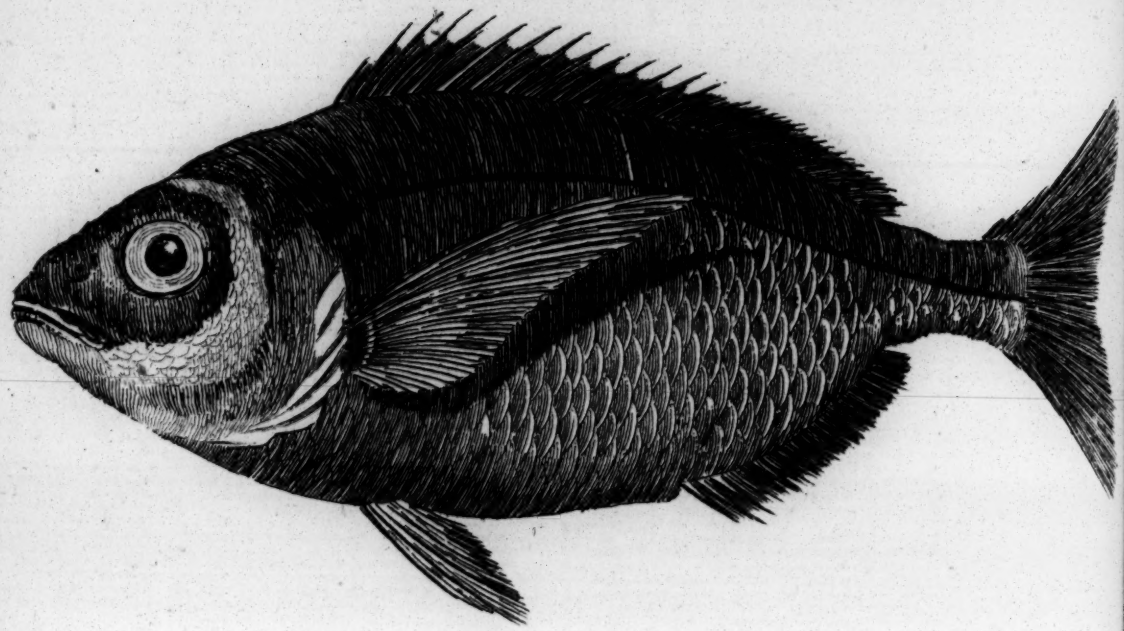
The eyes great: the irides yellow.

The lateral line oddly diſtorted, ſinking at each end, and riſing near the back in the middle: beneath it on each ſide is a round black ſpot.

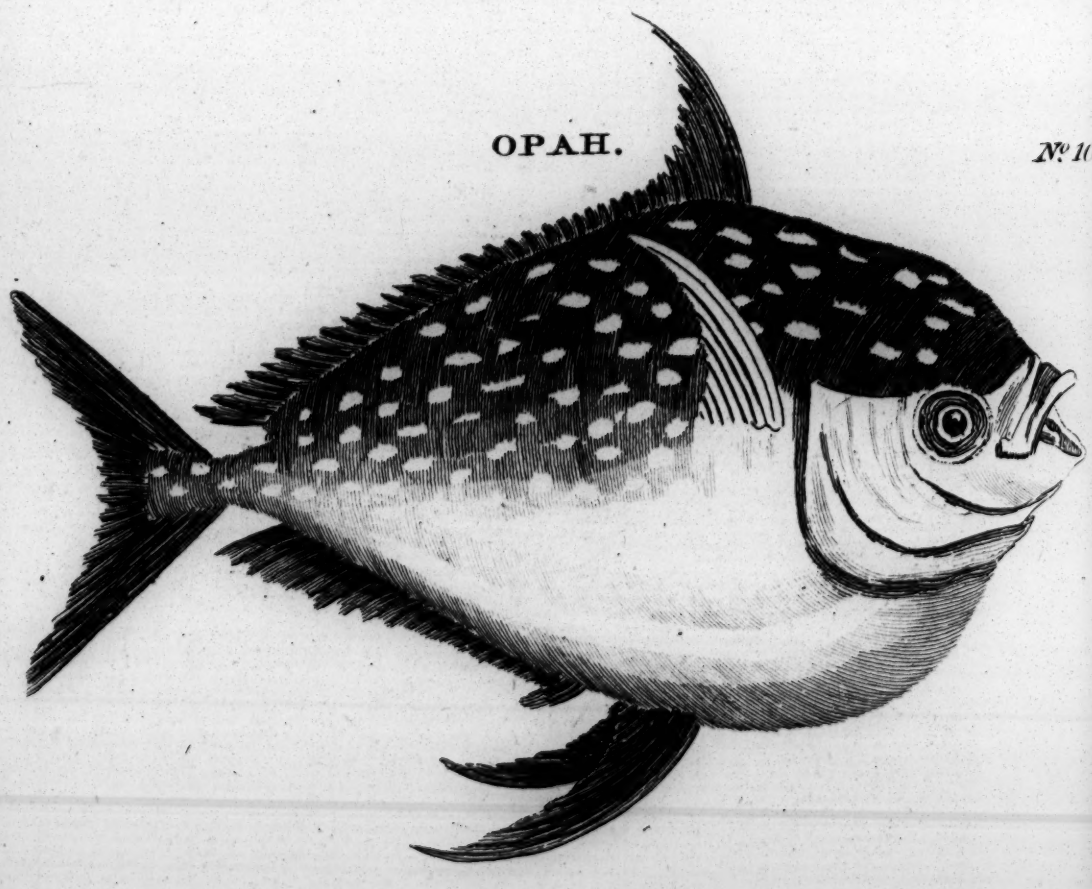
church of *Notre Dame* at *Paris*, and a ſtill larger at *Auxerre*; the laſt we think is near ſeventy feet high. His hiſtory is in his name, χριστοφορος, being ſaid to have carried our Saviour when a child, over an arm of the ſea.

The

LUNULATED GILT HEAD.



OPAH.



The firſt dorſal fin conſiſts of ten ſtrong ſpiny rays, with long filaments, reaching far beyond their ends: the ſecond is placed near the tail, and conſiſts of twenty-four ſoft rays, the middlemoſt of which are the longeſt.

The pectoral fins have fourteen rays, the ventral ſeven; the firſt ſpiny, the others ſoft: it has two anal fins; the firſt conſiſts of four ſharp ſpines, the ſecond of twenty-two ſoft ones, and reaches very near the tail.

The tail is round at the end, and conſiſts of fifteen branched rays.

The color of the ſides is olive, varied with light blue and white, and while living is very reſplendent, and as if gilt, for which reaſon it is called the *Doree*.

The largeſt fiſh we have heard of, weighed twelve pounds.

Opah, or King-fiſh. *Ph. Trans. abr.* XI. 879. *Tab.* V.
Zeus cauda bifurca, colore argenteo purpureo ſplendens. *Strom. Sondmor.* 323, 325. *Tab.* 1. *fig.* 20. 101. OPAH.

WE have only five inſtances of this fiſh being taken in our ſeas, four of them in the *North*, viz. twice off *Scotland**, once off *Northumberland*,

* The fiſh engraved by Sir *Robert Sibbald, Hiſt. Scot. Tab.* 6. and thus deſcribed, is of this kind. *Piſcis maculis aureis aſperſus non ſcriptus, pollices* 42 *longus.*

one

one in *Filey-Bay*, *Yorkſhire*; and a fifth was caught at *Brixham*, in *Torbay*, in 1772.

The laſt weighed a hundred and forty pounds. The length was four feet and an half: the breadth two feet and a quarter: the greateſt thickneſs, only four inches. Its general color was a vivid tranſparent ſcarlet varniſh, over burniſhed gold, beſpangled with oval ſilver ſpots of various ſizes: the breaſt was an hard bone, reſembling the keel of a ſhip: the fleſh looked, and taſted like beef *.

I find a more ample deſcription of another, by Mr. *Robert Harriſon*, of *Newcaſtle*.

Newcaſtle, *Sept.* 12. 1769; On *Saturday* laſt was thrown upon the ſands at *Blyth*, a very rare and beautiful fiſh, weighing between ſeventy and eighty pounds, ſhaped like the ſea bream. The length was three feet and an half; the breadth from back to belly almoſt two feet; but the thickneſs from ſide to ſide not above ſix inches.

The mouth ſmall for the ſize of the fiſh, forming a ſquare opening, and without any teeth in the jaws. The tongue thick, reſembling that of a man, but rough and thick ſet with beards or prickles, pointing backwards, ſo that any thing might eaſily paſs down, but could not eaſily return back, therefore theſe might ſerve inſtead of teeth to retain its prey. The eyes remarkably large, covered with a membrane, and ſhining with a glare of gold. The cover of the gills like the ſalmon.

† This deſcription was ſent to me by a gentleman, who ſaw the fiſh ſoon after it was taken.

The

The body diminiſhes very ſmall to the tail, which is forked, and expands twelve inches: the gill fins are broad, about eight inches long, and play horizontally: a little behind their inſertion the back fin takes its original, where it is about ſeven inches high, but ſlopes away very ſuddenly, running down very near the tail, and at its termination becomes a little broader: the belly fins are very ſtrong, and placed near the middle of the body: a narrow fin alſo runs from the anus to the tail.

All the fins, and alſo the tail, are of a fine ſcarlet; but the colors and beauty of the reſt of the body, which is ſmooth and covered with almoſt imperceptible ſcales, beggars all deſcription; the upper part being a kind of bright green, variegated with whitiſh ſpots, and enriched with a ſhining golden hue, like the ſplendor of a peacock's feather. This by degrees, vaniſhes in a bright ſilvery, and near the belly the gold again predominates in a lighter ground than on the back.

XXIV. FLOUNDER.

Body quite flat, and very thin.
Eyes, both on the ſame ſide the head.
Branchioſtegous rays from four to ſeven.

* With the eyes on the right ſide.

102. HOLIBUT.

Hippogloſſus. *Rondel.* 325. *Geſner piſc.* 669.
Heglbutte, Hilligbutte. *Schonevelde*, 62.
Holibut, *Septentr. Anglis* Turbot. *Wil. Ichth.* 99. *Raii ſyn. piſc.* 33.
Pleuronectes oculis a dextris, totus glaber. *Arted. ſynon.* 31.
Pleuronectes Hippogloſſus, *Lin. ſyſt.* 456.
Halg-flundra. *Faun. Suec.* No. 329. *Gronov. Zooph.* No. 247.

SIZE.

THIS is the largeſt of the genus; ſome have been taken in our ſeas weighing from one to three hundred pounds; but much larger are found in thoſe of *Newfoundland*, *Greenland*, and *Iceland*, where they are taken with a hook and line in very deep water. They are part of the food of the *Greenlanders* *, who cut them into large ſlips, and dry them in the ſun.

They are common in the *London* markets, where they are expoſed to ſale cut into large pieces. They are very coarſe eating, excepting the part

* *Crantz. Hiſt. Greenl.* I. 98.

which

which adheres to the ſide fins, which is extremely fat and delicious, but ſurfeiting.

They are the moſt voracious of all flat fiſh. The laſt year there were two inſtances of their ſwallowing the lead weight at the end of a line, with which the ſeamen were ſounding the bottom from on board a ſhip, one off *Flamborough Head*, the other going into *Tinmouth Haven:* the latter was taken, the other diſengaged itſelf.

Descrip. The holibut, in reſpect to its length, is the narroweſt of any of this genus except the ſole.

It is perfectly ſmooth, and free from ſpines either above or below. The color of the upper part is duſky; beneath of a pure white. We do not count the rays of the fins in this genus, not only becauſe they are ſo numerous, but becauſe nature hath given to each ſpecies characters ſufficient to diſtinguiſh them by.

Theſe flat fiſh ſwim ſideways; for which reaſon *Linnæus* hath ſtyled them *Pleuronectes*.

103. PLAISE. Platessa? *Ausonii Epist. ad. Theon.* 62.
Le Quarlet. *Belon*, 139.
Quadratulus. *Rondel.* 318. *Gesner pisc.* 665.
Scholle, Pladise. *Schonevelde*, 61.
Plaise. *Wil. Icth.* 96. *Raii syn. pisc.* 31.
Pleuronectes oculis et tuberculis sex a dextra capitis, lateribus glabris, spina ad anum. *Arted. synon.* 30.
Pleuronectes Platessa. *Lin. syst.* 456. *Gronov. Zooph. No.* 246.
Skalla, Rodsputta. *Faun. Suec.* No. 328.

THESE fish are very common on most of our coasts, and sometimes taken of the weight of fifteen pounds; but they seldom reach that size, one of eight or nine pounds being reckoned a large fish.

The best and largest are taken off *Rye*, on the coast of *Sussex*, and also off the *Dutch* coasts. They spawn on the beginning of *February*.

They are very flat, and much more square than the preceding. Behind the left eye is a row of six tubercles, that reaches to the commencement of the lateral line.

The upper part of the body and fins is of a clear brown, marked with large bright orange-colored spots: the belly is white.

Le

Le Flez. *Belon*, 141.
Paſſeris tertia ſpecies. *Rondel*, 319. *Geſner piſc.* 666, 670.
Struff-butte. *Schonevelde*, 62.
Flounder, Fluke, or But. *Wil. Ich.* 980. *Raii ſyn. piſc.* 32.
Pleuronectes oculis a dextris, linea laterali aſpera, ſpinulis ſupiné ad radices pinnarum, dentibus obtuſis. *Arted. ſynon.* 31.
Plueronectes Fleſus. *Lin. ſyſt.* 457. *Gronov. Zooph.* No. 248.
Flundra, Slatt-ſkadda. *Faun. Suec.* No. 327.

104. FLOUNDER.

THE flounder inhabits every part of the *Britiſh* ſea, and even frequents our rivers at a great diſtance from the ſalt waters; and for this reaſon ſome writers call it the *Paſſer fluviatilis*. It never grows large in our rivers, but is reckoned ſweeter than thoſe that live in the ſea. It is inferior in ſize to the plaiſe, for we never heard of any that weighed more than ſix pounds.

DESCRIP.

It may very eaſily be diſtinguiſhed from the plaiſe, or any other fiſh of this genus, by a row of ſharp ſmall ſpines that ſurround its upper ſides, and are placed juſt at the junction of the fins with the body. Another row marks the ſide-line, and runs half way down the back.

The color of the upper part of the body is a pale brown, ſometimes marked with a few obſcure ſpots of dirty yellow. the belly is white.

We have met with a variety of this fiſh with the eyes and lateral line on the left ſide. *Linnæus* makes a diſtinct ſpecies of it under the name of

Pleuronectes Paſſer, p. 459; but ſince it differs in no other reſpect from the common kind, we agree with Doctor *Gronovius* in not ſeparating them.

105. DAB. La Limande. *Belon*, 142.
Paſſer aſper, ſive ſquamoſus. *Rondel.* 319. *Geſner piſc.* 665.
Dab. *Wil. Icth.* 79. *Raii ſyn. piſc.* 32.
Pleuronectes oculis a dextra, ſquamis aſperis, ſpina ad anum, dentibus obtuſis. *Arted. ſynon.* 33.
Pleuronectes Limanda. Pl. oculis dextris, ſquamis ciliatis, ſpinulis ad radicem pinnarum dorſi, anique. *Lin. ſyſt.* 457.

THE dab is found with the other ſpecies, but is leſs common. It is in beſt ſeaſon during *February*, *March*, and *April:* they ſpawn in *May* and *June*, and become flabby and watery the reſt of ſummer. They are ſuperior in goodneſs to the plaiſe and flounder, but far inferior in ſize.

DESCRIP. It is generally of an uniform brown color on the upper ſide, tho' ſometimes clouded with a darker. The ſcales are ſmall and rough, which is a character of this ſpecies. The lateral line is extremely incurvated at the beginning, then goes quite ſtrait to the tail. The lower part of the body is white.

106. SMEAR-DAB. Rhombus lævis *Cornubienſis* maculis nigris, a Kit. Mr. *Jago. Raii ſyn. piſc.* 162. *fig.* 1.

WE found one of this ſpecies at a fiſhmonger's in *London*, where it is known by the name of the *Smear-dab*.

It

It was a foot and a half long, and eleven inches broad between fin and fin on the wideſt part.

The head appeared very ſmall, as the dorſal fin began very near its mouth, and extended very near to the tail. It conſiſted of ſeventy nine rays.

The eyes were pretty near each other. The mouth full of ſmall teeth.

The lateral line was much incurvated for the firſt two inches from its origin, then continued ſtrait to the tail.

The back was covered with ſmall ſmooth ſcales, was of a light brown color, ſpotted obſcurely with yellow. The belly white, and marked with five large duſky ſpots.

It was a fiſh of goodneſs equal to the common dab.

Βαγλωσσος *Athen. lib.* viii. *p.* 288. *Oppian Halieut.* I. 99.
La Sole. *Belon*, 142.
Bugloſſus. *Rondel.* 320. *Geſner piſc.* 666.
Tungen. *Schonevelde*, 63.
Pleuronectes oculis a ſiniſtra corpore oblongo, maxilla ſuperiore longiore, ſquamis utrinque aſperis. *Arted. ſyn.* 32.
Pleuronectes Solea *Lin. ſyſt.* 457. *Gronov. Zooph. No.* 251. Tunga, Sola. *Faun. Suec. No.* 326.

107. Sole.

THE ſole is found on all our coaſts, but thoſe on the weſtern ſhores are much ſuperior in ſize to thoſe of the north. On the former they are ſometimes taken of the weight of ſix or ſeven

pounds, but towards *Scarborough* they rarely exceed one pound; if they reach two, it is extremely uncommon.

They are uſually taken in the trawlnet: they keep much at the bottom, and feed on ſmall ſhell fiſh.

DESCRIP. It is of a form much more narrow and oblong than any other of the genus. The irides are yellow; the pupils of a bright ſappharine color: the ſcales are ſmall, and very rough: the upper part of the body is of a deep brown: the tip of one of the pectoral fins black: the under part of the body is white: the lateral line ſtrait: the tail rounded at the end.

It is a fiſh of a very delicate flavour; but the ſmall ſoles are much ſuperior in goodneſs to large ones*. The chief fiſhery for them is at *Brixham* in *Torbay*.

108. SMOOTH SOLE. Solea? *Ovid. Halieut.* 124.
Arnogloſſus ſeu Solea lævis. *Wil. Icth.* 102. *Raii ſyn. piſc.* 34.

THIS, as deſcribed by Mr. *Ray*, (for we have not ſeen it) is extremely thin, pellucid, and

* By the antient laws of the *Cinque* ports, no one was to take ſoles from the 1ſt of *November* to the 15th of *March*; neither was any body to fiſh from ſun ſetting to ſun-riſing, that the fiſh might enjoy their night-food.

white,

white, and covered with ſuch minute ſcales, and thoſe inſtantly deciduous, as to merit the epithet ſmooth.

It is a ſcarce ſpecies, but is found in *Cornwall*, where, from its tranſparency, it is called the *Lantern Fiſh*.

It is probable that *Ovid* intended this ſpecies, by his *Solea*; for the common kind does by no means merit his deſcription.

Fulgentes SOLEÆ *candore.*

And *Soles* with white reſplendent.

** With the eyes on the left ſide.

109. TURBOT.

Rhombus. *Ovid Halieut.*
Le Turbot. *Belon*, 134.
Rhombus aculeatus. *Rondel.* 310. *Geſner piſc.* 661.
Steinbutt, Torbutt, Treenbutt, Dornbutt. *Schonevelde*, 60.
Turbot, in the *north* a Bret. *Wil. Icth.* 94.
Rhombus maximus aſper non ſquamoſus. *Raii ſyn. piſc.* 31.
Pleuronectes oculis a ſiniſtra, corpore aſpero. *Arted. ſynon.* 32.
Pleuronectes maximus. *Lin. ſyſt.* 459. *Gronov. Zooph. No.* 254.
Butta. *Faun. Suec. No.* 325.

SIZE.

TURBOTS grow to a very large ſize; we have ſeen them of three and twenty pounds weight, but have heard of ſome that weighed thirty. They are taken chiefly off the north coaſt of *England*,

England, and others off the *Dutch* coaſt; but we believe the laſt has, in many inſtances, more credit than it deſerves for the abundance of its fiſh.

FISHERY. The large Turbots, and ſeveral other kinds of flat fiſh, are taken by the hook and line, for they lye in deep water: the method of taking them in wares, or ſtaked nets, is too precarious to be depended on for the ſupply of our great markets, becauſe it is by meer accident that the great fiſh ſtray into them.

It is a misfortune to the inhabitants of many of our fiſhing coaſts, eſpecially thoſe of the north part of *North Wales*, that they are unacquainted with the moſt ſucceſsful means of capture: for their benefit, and perhaps that of other parts of our iſland, we ſhall lay before them the method practiſed by the fiſhermen of *Scarborough*, as it was communicated to us by Mr. *Travis*.

LINES. When they go out to fiſh, each perſon is provided with three lines. Each man's lines are fairly coiled upon a flat oblong piece of wicker-work; the hooks being baited, and placed very regularly in the centre of the coil. Each line is furniſhed with 14 ſcore of hooks, at the diſtance of ſix feet two inches from each other. The hooks are faſtened to the lines upon ſneads of twiſted horſe-hair, 27 inches in length.

When fiſhing there are always three men in each coble, and conſequently nine of theſe lines are faſtened together, and uſed as one line, extending

ing in length near three miles, and furniſhed with 2520 hooks. An anchor and a buoy are fixed at the firſt end of the line, and one more of each at the end of each man's lines; in all four anchors, which are commonly perforated ſtones, and four buoys made of leather or cork. The line is always laid acroſs the current. The tides of flood and ebb continue an equal time upon our coaſt, and when undiſturbed by winds run each way about ſix hours. They are ſo rapid that the fiſhermen can only ſhoot and haul their lines at the turn of tide; and therefore the lines always remain upon the ground about ſix hours *. The ſame rapidity of tide prevents their uſing hand-lines; and therefore two of the people commonly wrap themſelves in the ſail, and ſleep while the other keeps a ſtrict look-out, for fear of being run down by ſhips, and to obſerve the weather. For ſtorms often riſe ſo ſuddenly, that it is with extreme difficulty they can ſometimes eſcape to the ſhore, leaving their lines behind.

Coble.

The coble is 20 feet 6 inches long, and 5 feet extreme breadth. It is about one ton burthen, rowed with three pair of oars, and admirably conſtructed for the purpoſe of encountering a mountainous ſea: they hoiſt ſail when the wind ſuits.

* In this ſpace the *myxine glutinoſa* of *Linnæus*, will frequently penetrate the fiſh that are on the hooks, and entirely devour them, leaving only the ſkin and bones.

The

The five-men boat is 40 feet long and 15 broad, and of 25 tons burthen: it is ſo called, tho' navigated by ſix men and a boy, becauſe one of the men is commonly hired to cook, &c. and does not ſhare in the profits with the other five. All our able fiſhermen go in theſe boats to the herring fiſhery at *Yarmouth* the latter end of *September*, and return about the middle of *November*. The boats are then laid up until the beginning of *Lent*, at which time they go off in them to the edge of the *Dogger*, and other places, to fiſh for turbot, cod, ling, ſkates, &c. They always take two cobles on board, and when they come upon their ground, anchor the boat, throw out the cobles, and fiſh in the ſame manner as thoſe do who go from the ſhore in a coble; with this difference only, that here each man is provided with double the quantity of lines, and inſtead of waiting the return of tide in the coble, return to the boat and bait their other lines; thus hawling one ſet, and ſhooting another every turn of tide. They commonly run into harbour twice a week to deliver their fiſh. The five-men boat is decked at each end, but open in the middle, and has two large lug-ſails.

BAIT. The beſt bait for all kinds of fiſh is freſh herring cut in pieces of a proper ſize; and notwithſtanding what has been ſaid to the contrary, they are taken here at any time in the winter, and all the ſpring, whenever the fiſhermen put down their nets for that purpoſe. The five-men boats always take

ſome

ſome nets for that end. Next to herrings are the leſſer lampreys *, which come all winter by land-carriage from *Tadcaſter*. The next baits in eſteem are ſmall hadocks cut in pieces, ſand worms, muſcles, and limpets (called here *Flidders*;) and laſtly, when none of theſe can be had they uſe bullock's liver. The hooks uſed here are much ſmaller than thoſe employed at *Iceland* and *Newfoundland*. Experience has ſhewn that the larger fiſh will take a living ſmall one upon the hook, ſooner than any bait that can be put on; therefore they uſe ſuch as the ſmall fiſh can ſwallow. The hooks are two inches and an half long in the ſhank, near an inch wide between the ſhank and the point. The line is made of ſmall cording, and is always tanned before it is uſed.

Turbots, and all the rays, are extremely delicate in their choice of baits. If a piece of herring or hadock has been twelve hours out of the ſea, and then uſed as bait, they will not touch it.

This and the pearl are of a remarkable ſquare form: the color of the upper part of the body is cinereous, marked with numbers of black ſpots of different ſizes: the belly is white: the ſkin is without ſcales, but greatly wrinkled, and mixed with ſmall ſhort ſpines, diſperſed without any order.

* The *Dutch* alſo uſe theſe fiſh as baits in the turbot fiſhery, and purchaſe annually from the *Thames* fiſhermen as much as amounts to 700*l.* worth, for that purpoſe.

Paſſer

110. PEARL. La Barbue. *Belon*, 137.
Rhombus lævis. *Rondel.* 312. *Geſner piſc.* 662.
Schlichtbutt. *Schonevelde*, 60.
Rhombus non aculeatus ſquamoſus *the Pearl. Londinens. Cornub. Lug-aleaf. Wil. Icth.* 95. *Raii ſyn. piſc.* 31.
Pleuronectes oculis a ſiniſtris, corpore glabro. *Arted. ſyn.* 31.
Pleuronectes Rhombus. *Lin. ſyſt* 458. *Gronov. Zooph.* No. 149.
Pigghvarf. *It. W. Goth.* 178.

IT is frequently found in the *London* markets, but is inferior to the turbot in goodneſs as well as ſize.

The irides are yellow: the ſkin is covered with ſmall ſcales, but is quite free from any ſpines or inequalities.

The upper ſide of the body is of a deep brown, marked with ſpots of dirty yellow: the under ſide is of a pure white.

111. WHIFF. Paſſer *Cornubienſis* aſper, magno oris hiatu. Mr. *Jago. Raii ſyn. piſc.* 163. *fig.* 2.

THIS bears ſome reſemblance to the *Holibut.* One was brought to me by my fiſherman, *October* 31, 1775. Its length was eighteen inches: the greateſt breadth not ſeven, excluſive of the fins.

The

The mouth extremely large: teeth very ſmall: the under jaw hooks over the upper: the eyes large; and placed on the ſide.

The ſcales great, and rough: the ſide-line uncommonly incurvated at the beginning. After making a ſharp angle, goes ſtrait to the tail, and is tuberculated: the tail is rounded.

The color of the upper part of the body is cinereous brown, clouded in parts, and obſcurely ſpotted: the under ſide white, tinged with red.

Covers

XXV. GILT-HEAD.

Covers of the gills ſcaly.
Five branchioſtegous rays.
Fore teeth ſharp.
Grinders flat.
One dorſal fin, reaching the whole length of the back.
Forked tail.

112. LUNULATED.

Χρυσοφρυς. *Oppian Halieut.* I. 169.
Chryſophrys. *Ovid Halieut.* III.
Aurata *Plinii, Lib.* IX. *c.* 16.
La Dorade. *Belon,* 186.
Chryſophry *Caii opuſc.* 112.
Aurata. *Rondel.* 115. *Geſner piſc.* 110. 112.
Gilt-head or Gilt-poll. *Will. Icth.* 307. *Raii ſyn. piſc.* 131.
Sparus dorſo acutiſſimo, linea arcuata inter oculos. *Arted. ſynon.* 63.
Sparus lunula aurea inter oculos. *Lin. ſyſt.* 467. *Gronov. Zooph.* No. 220.

THIS is one of the *piſces ſaxatiles*, or fiſh that haunt deep waters on bold rocky ſhores: thoſe that form this genus, as well as the following, feed chiefly on ſhell fiſh, which they comminute with their teeth before they ſwallow; the teeth of this genus in particular being extremely well adapted for that purpoſe, the grinders being flat and ſtrong, like thoſe of certain quadrupeds: beſides thoſe are certain bones in the lower part of the mouth, which aſſiſt in grinding their food.

They

They are but a coarſe fiſh; nor did the *Romans* hold them in any eſteem, except they had fed on the *Lucrine* oyſter.

Non omnis laudem pretiumque AURATA *meretur,*
Sed cui ſolus erit concha LUCRINA *cibus* *.

No praiſe, no price a *Gilt-head* e'er will take,
Unfed with oyſters of the *Lucrine* lake.

DESCRIP. They grow to the weight of ten pounds: the form of the body is deep, not unlike that of a bream: the back is very ſharp, and of a duſky green color: the irides of a ſilvery hue: between the eyes is a ſemilunar gold colored ſpot, the horns of which point towards the head: on the upper part of the gills is a black ſpot, beneath that another of purple.

The dorſal fin extends almoſt the whole length of the back, and conſiſts of twenty-four rays, the eleven firſt ſpiny, the others ſoft: the pectoral fins conſiſt of ſeventeen ſoft rays; the ventral of ſix rays, the firſt of which is very ſtrong and ſpiny: the anal fin of fourteen; the three firſt ſpiny.

The tail is much forked.

COLOR. It takes its name from its predominant color; that of the forehead and ſides being as if gilt, but the laſt is tinged with brown.

* *Martial. Lib.* XIII. *Ep.* 99.

113. RED.

Pagur? *Ovid Halieut.* 107.
Le Pagrus. *Belon*, 245.
Pagrus. *Rondel.* 142. *Geſner piſc.* 656.
Sea Bream. *Wil. Icth.* 312. *Raii ſyn. piſc.* 131.
Sparus rubeſcens, cute ad radicem pinnarum dorſi et ani in ſinum producta. *Arted. ſynon.* 64.
Sparus Pagrus. *Lin. ſyſt.* 469.

DESCRIP. THIS ſpecies grows to a ſize equal with that of the former: its ſhape and the figure of the teeth are much the ſame.

The irides are ſilvery: the inſide of the covers of the gills, the mouth, and the tongue, are of a fine red.

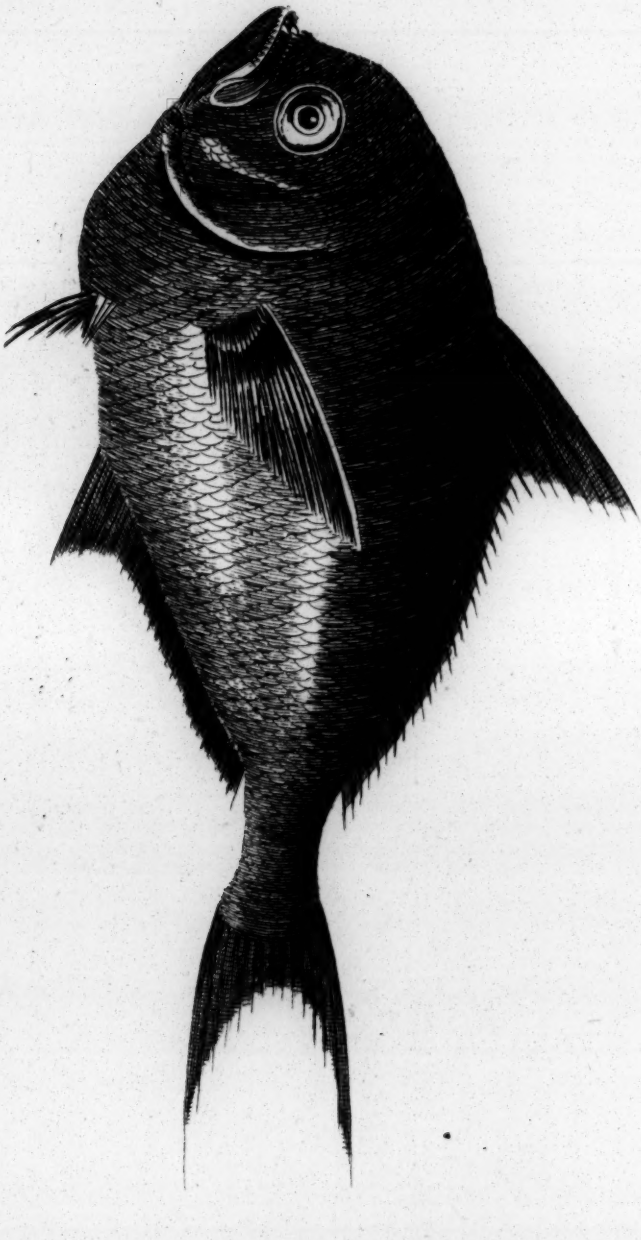
At the baſe of the pectoral fins is a ferruginous ſpot.

What is peculiar to this ſpecies is, that the ſkin at the end of the dorſal and anal fins is gathered up, and hides the laſt rays.

The ſcales are large: the tail forked.

COLOR. The color of the whole body is red.

Brama



TOOTHED GILT-HEAD.

Brama marina cauda forcipata D. *Jonſton. Raii ſyn. piſc.* 115. 114. TOOTHED.

THIS ſpecies was communicated to Mr. *Ray* by his friend Mr. *Jonſton*, a *Yorkſhire* gentleman, who informed him it was found on the ſands near the mouth of the *Tees*, *Sept.* 18, 1681.

It was a deep fiſh, formed like a roch, twenty-ſix inches long, ten broad, and grew very ſlender towards the tail.

The eyes large, like thoſe of quadrupeds. In the lower jaws were two rows of teeth, ſlender and ſharp as needles; and on each ſide a ſlender canine tooth: in the upper only a ſingle row of teeth. The aperture of the gills very large. The body ſcaly.

In the middle of the back was one fin extending almoſt to the tail; the ſeven firſt rays high, the reſt low: behind the vent is another, correſponding: both are entirely covered with ſcales ſlated over each other.

The back black; the ſides of a brighter color: the belly quite of a ſilvery brightneſs.

XXVI. WRASSE.

Covers of the gills ſcaly.

Branchioſtegous rays unequal in number *.

Teeth conic, long and blunt at their ends. One tuberculated bone in the bottom of the throat: two above oppoſite to the other.

One dorſal fin reaching the whole length of the back: a ſlender ſkin extending beyond the end of each ray.

Rounded tail.

115. ANCIENT.

Vieille, Poule de mer, Gallot, une Roſſe. *Belon*, 248.

Turdorum undecimum genus. *Rondel.* 179. *Geſner piſc.* 1019.

Turdus vulgatiſſimus. *Wil. Icth.* 319.

Wraſſe, or Old Wife. *Raii ſyn. piſc.* 136.

Labrus roſtro ſurſum reflexo cauda in extremo circulari. *Arted. ſynon.* 56.

Labrus Tinca. *Lin. ſyſt.* 477.

THIS ſpecies is found in deep water adjacent to the rocks. It will take a bait, though its uſual food is ſhell-fiſh, and ſmall cruſtacea.

* *Linnæus* ſays ſix: this ſpecies had only four; the ſecond, ſix; the third and fourth, five. We alſo find the ſame variation in the rays of the fins, the numbers being different in fiſh of the ſame ſpecies, not only of this but of other *genera*.

It

It grows to the weight of four or five pounds: it bears ſome reſemblance to a carp in the form of the body, and is covered with large ſcales.

The noſe projects; the lips are large and fleſhy, and the one turns up, the other hangs down: the mouth is capable of being drawn in or protruded. Teeth.

The irides are red: the teeth are diſpoſed in two rows; the firſt are conic, the ſecond very minute, and as if ſupporters to the others: in the throat juſt before the gullet are three bones, two above of an oblong form, and one below of a triangular ſhape; the ſurface of each riſing into roundiſh protuberances: theſe are of ſingular uſe to the fiſh, to grind its ſhelly food before it arrives at the ſtomach.

The dorſal fin conſiſts of ſixteen ſharp and ſpiny rays, and nine ſoft ones, which are much longer than the others.

The pectoral fins large and round, and are compoſed of fifteen rays.

The ventral of ſix; the firſt ſharp and ſtrong: the anal of three ſharp ſpines, and nine flexible.

The tail is rounded at the end, and is formed of fourteen ſoft branching rays.

The lateral line much incurvated near the tail.

Theſe fiſh vary infinitely in color: we have ſeen them of a dirty red, mixed with a certain duſkineſs; others moſt beautifully ſtriped, eſpecially about Color.

the head, with the richeſt colors, ſuch as blue, red, and yellow. Moſt of this genus are ſubject to vary; therefore care muſt be taken not to multiply the ſpecies from theſe accidental teints, but to attend to the form which never alters.

The *Welch* call this fiſh *Gwrach*, or the old woman; the *French*, *la Vieille*; and the *Engliſh* give it the name of *Old Wife*.

116 Ballan.

THIS is a kind of *Wraſſe*, ſent from *Scarborough* by Mr. *Travis*, differing from the other ſpecies. They appear during ſummer in great ſhoals off *Filey-Bridge*: the largeſt weigh about five pounds.

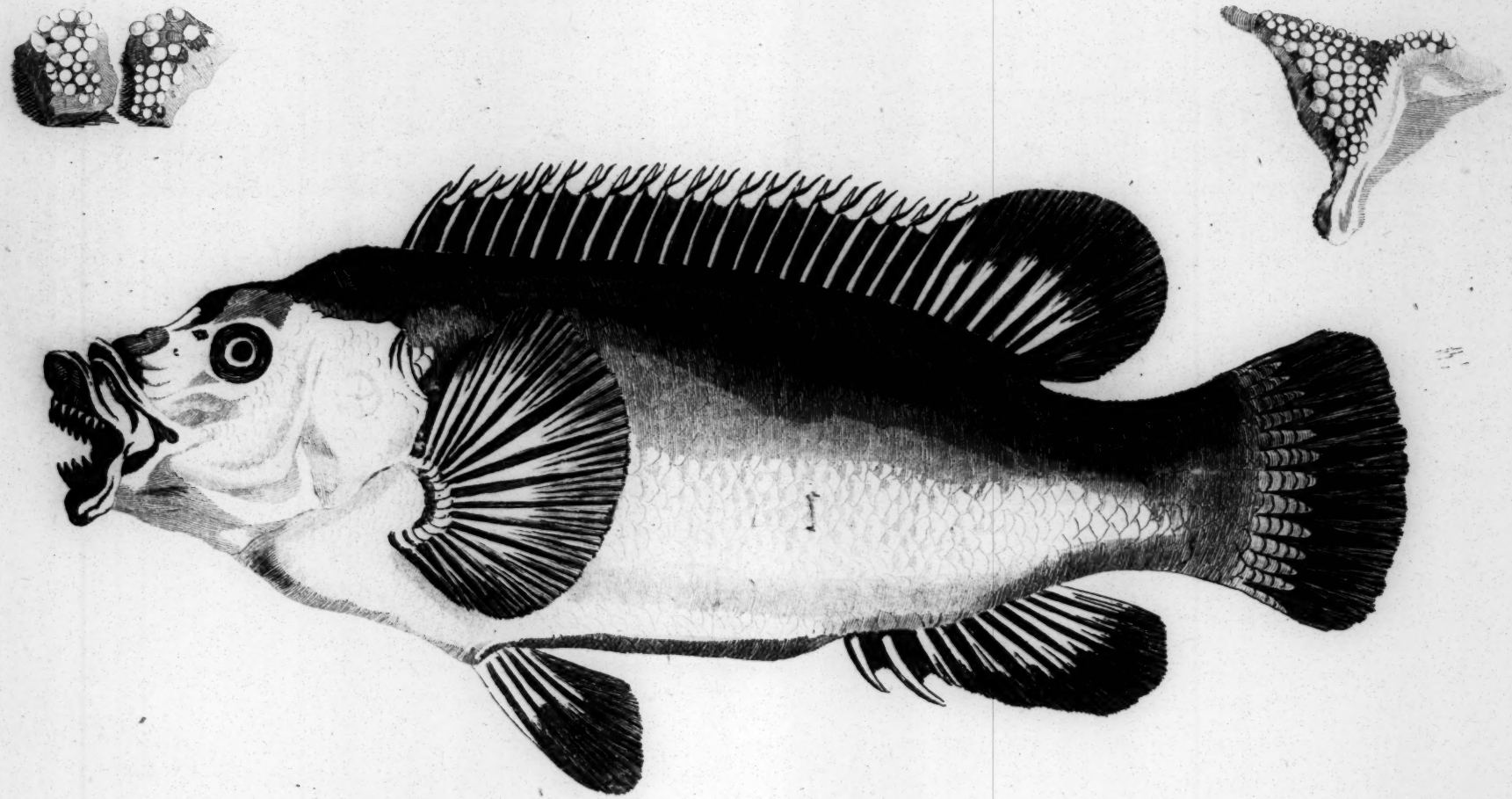
It was of the form of the common *wraſſe*, only between the dorſal fin and the tail was a conſiderable ſinking: above the noſe was a deep ſulcus: on the fartheſt cover of the gills was a depreſſion radiated from the center.

It had only four branchioſtegous rays.

The dorſal fin had thirty-one rays, twenty ſpiny, eleven ſoft; the laſt branched, and much longer than the ſpiny rays.

The pectoral fins had fourteen; the ventral ſix; the firſt of which was ſhort and ſpiny: the anal twelve; the three firſt ſpiny, the nine others branched and ſoft.

The



The tail was rounded at the end; at the bottom, for about a third part of the way, between each ray was a row of ſcales.

The color in general was yellow, ſpotted with orange.

Labrus bimaculata. L. pinna dorſali ramentacea, macula fuſca in latere medio, et ad caudam. *Lin. ſyſt.* 477.

Sciæna bimaculata. *Mus. Ad. Fred.* I. 66. *tab.* XXXI. *fig.* 66.

117. BIMACULATED.

MR. *Brunnich* obſerved this ſpecies at *Penzance*, and referred me to *Linnæus*'s deſcription of it in the *Muſeum Ad. Fred.* where it is deſcribed under the name of *Sciæna Bimaculata.*

DESCRIP.

The body is pretty deep, and of a light color, marked in the middle on each ſide with a round brown ſpot; on the upper part of the baſe of the tail is another: the lateral line is incurvated.

The branchioſtegous rays are ſix in number*: the firſt fifteen rays of the dorſal fin are ſpiny; the

* *Linnæus*, in his laſt edition, has removed this ſpecies from the genus of *Sciæna*, to that of *Labrus*, though it does not agree with the laſt in *his* number of branchioſtegous rays.

other eleven ſoft, and lengthened by a ſkinny appendage: the pectoral fins conſiſt of fifteen rays; the ventral of ſix; the firſt ſpiny; the ſecond and third ending in a ſlender briſtle: the anal fin is pointed; the four firſt rays being ſhort and ſpiny; the reſt long and ſoft.

118. TRIMACULATED.

THE ſpecies we examined was taken on the coaſt of *Angleſea*; its length was eight inches. It was of an oblong form; the noſe long; the teeth ſlender; the fore teeth much longer than the others.

The eyes large: branchioſtegous rays, five.

The back fin conſiſting of ſeventeen ſpiny rays, and thirteen ſoft ones; beyond each extended a long nerve.

The pectoral fins were round, and conſiſted of fifteen branched rays.

The ventral fins conſiſted of ſix rays; the firſt ſpiny.

The anal fin of twelve; the three firſt ſhort, very ſtrong, and ſpiny; the others ſoft and branched.

The tail was rounded.

The lateral line was ſtrait at the beginning of the back, but grew incurvated towards the tail.

The

PL. XIV.

STRIPED WRASSE.

No. 120.

The body covered with large red ſcales; the covers of the gills with ſmall ones.

On each ſide of the lower part of the back fin were two large ſpots, and between the fin and the tail another.

THIS was taken off the *Skerry Iſles*, on the coaſt of *Angleſea*; its length was ten inches. 119. STRIPED.

The form was oblong, but the beginning of the back a little arched: the lips large, double, and much turned up: the teeth like thoſe of the preceding: branchioſtegous rays, five. DESCRIP.

The number of rays in the back, pectoral, and ventral fins, the ſame as in thoſe of the former.

In the anal fin were fifteen rays; the three firſt ſtrong and ſpiny.

The tail almoſt even at the end, being very little rounded: the covers of the gills cinereous, ſtriped with fine yellow.

The ſides marked with four parallel lines of greeniſh olive, and the ſame of moſt elegant blue. COLOR.

The back and belly red; but the laſt of a much paler hue, and under the throat almoſt yellow.

Along the beginning of the back fin was a broad bed of rich blue; the middle part white; the reſt red.

At

At the baſe of the pectoral fins was a dark olive ſpot.

The ends of the anal fin, and ventral fins, a fine blue.

The upper half of the tail blue; the lower part of its rays yellow.

120. Gibbous.

THIS ſpecies was taken off *Angleſea*: its length was eight inches; the greateſt depth three: it was of a very deep and elevated form, the back being vaſtly arched, and very ſharp or ridged.

From the beginning of the head to the noſe, was a ſteep declivity.

The teeth like thoſe of the others.

The eyes of a middling ſize; above each a duſky ſemilunar ſpot.

The neareſt cover of the gills finely ſerrated.

The ſixteen firſt rays of the back ſtrong and ſpiny; the other nine ſoft and branched.

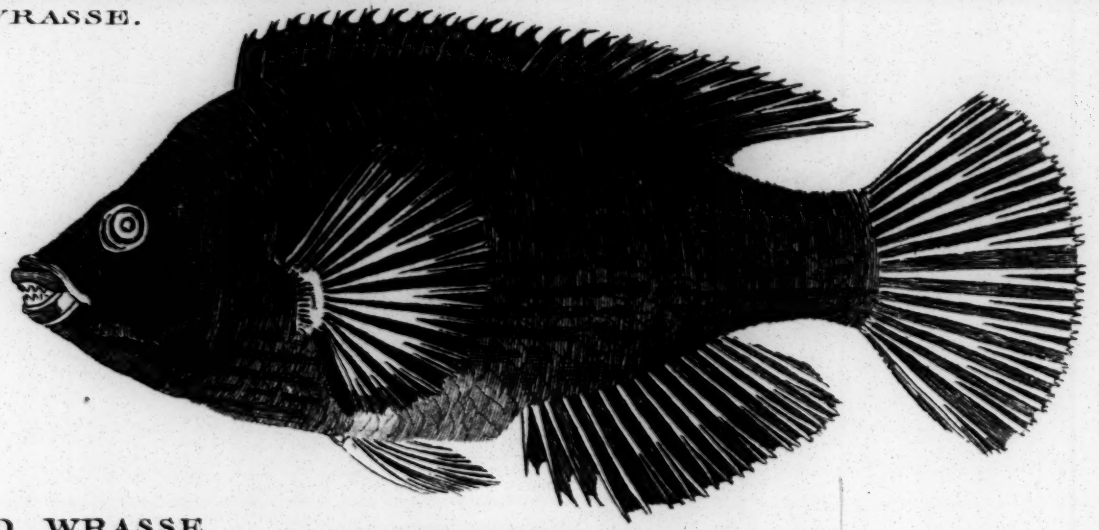
The pectoral fins conſiſted of thirteen, the ventral of ſix rays; the firſt ray of the ventral fin was ſtrong and ſharp.

The anal fin conſiſted of fourteen rays, of which the three firſt were ſtrongly aculeated.

The tail was large, rounded at the end, and the rays

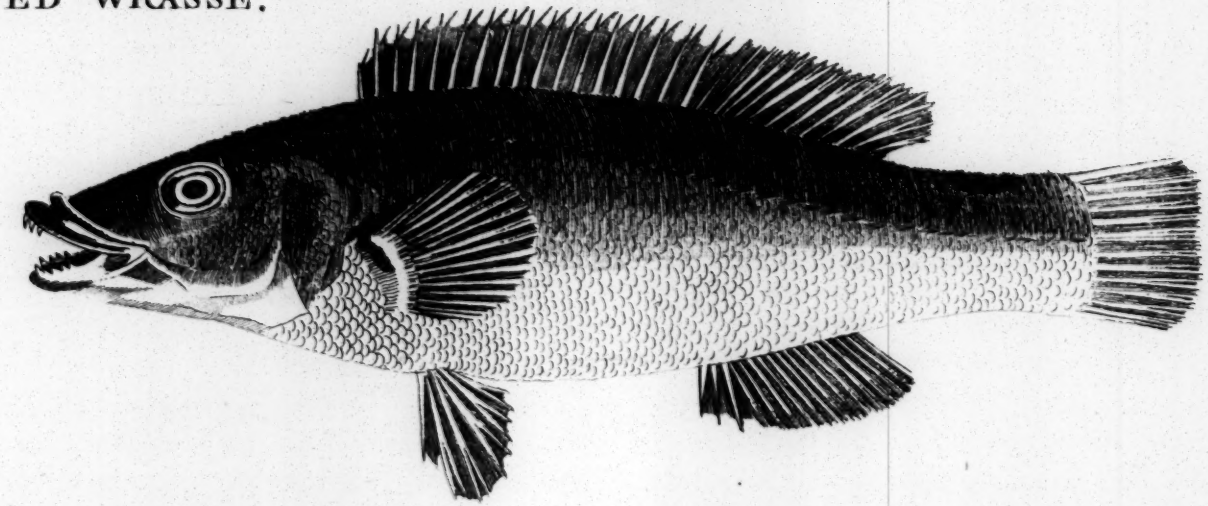
GIBBOUS WRASSE.

Nº 120.

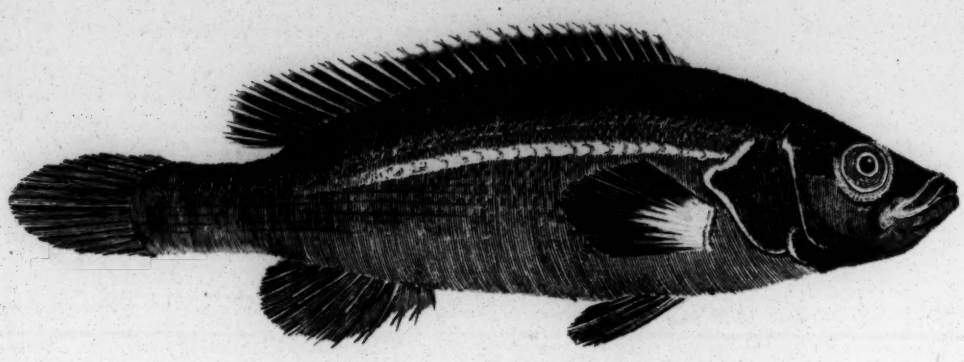


TRIMACULATED WRASSE.

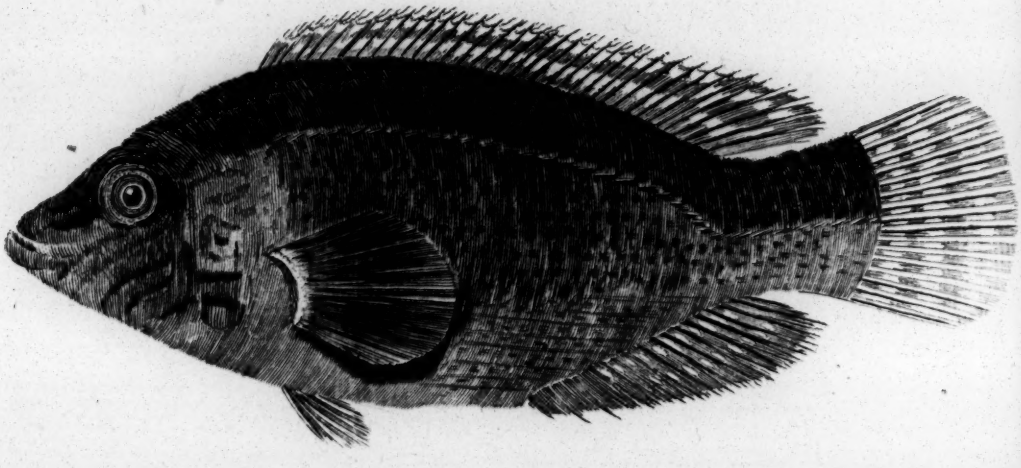
Nº 118.



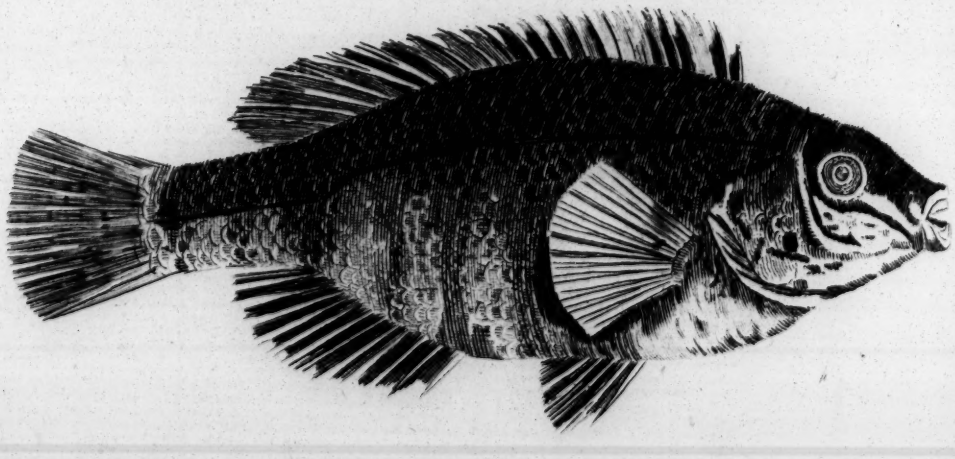
COMBER WRASSE.



ANTIENT WRASSE?



GOLDSINNY.



M Griffiths del

rays branched; the ends of the rays extending beyond the webs.

The lateral line was incurvated towards the tail.

The gill covers and body covered with large ſcales.

The firſt were moſt elegantly ſpotted, and ſtriped with blue and orange, and the ſides ſpotted in the ſame manner; but neareſt the back the orange was diſpoſed in ſtripes: the back fin and anal fin were of a ſea green, ſpotted with black. COLOR.

The ventral fins and tail a fine pea green.

The pectoral fins yellow, marked at their baſe with tranſverſe ſtripes of red.

Goldſinny *Cornubienſium*, Mr. *Jago*. *Raii ſyn. piſc.* 163. *fig.* 3. 121. GOLDSINNY.

THIS and the two following ſpecies were diſcovered by Mr. *Jago* on the coaſt of *Cornwal*: we never had an opportunity of examining them, therefore are obliged to have recourſe to his deſcriptions, retaining their local names.

In the whole form of the body, lips, teeth, and fins, it reſembles the *Wraſſe*: it is ſaid never to exceed a palm in length: near the tail is a remarkable

able black ſpot: the firſt rays of the dorſal fin are tinged with black.

The *Melanurus* of *Rondeletius* (adds he) takes its name from the black ſpot near the tail; but in many inſtances it differs widely from this ſpecies, the tail of the firſt is forked, that of the *Goldfinny* is even at the end.

I ſuſpect that this ſpecies was ſent to me from *Cornwal.* Beſides the ſpot near the tail, there was another near the vent.

In the dorſal fin were ſixteen ſpiny, and nine ſoft rays: in the pectoral fourteen: in the anal three ſpiny, eleven ſoft: in the ventral ſix. The tail almoſt even at the end.

122. COMBER.

Comber *Cornub. Raii ſyn. piſc.* 163. *fig.* 5?

I RECEIVED this ſpecies from *Cornwal,* and ſuppoſe it to be the *Comber* of Mr. *Jago.*

It was of a ſlender form. The dorſal fin had twenty ſpiny, eleven ſoft rays: the pectoral fourteen: the ventral five: the anal three ſpiny, ſeven ſoft. The tail round.

The color of the back, fins, and tail, red: the belly yellow: beneath the lateral line ran parallel a ſmooth,

a ſmooth, even ſtripe from gills to tail, of a ſilvery color.

Cook (*i. e.* Coquus) *Cornubienſium. Raii ſyn. piſc.* 163. 123. Cook. *fig.* 4.

THIS ſpecies, Mr. *Jago* ſays, is ſometimes taken in great plenty on the *Corniſh* coaſts. It is a ſcaly fiſh, and does not grow to any great ſize. The back is purple and dark blue; the belly yellow. By the figure it ſeems of the ſame ſhape as the Comber, and the tail rounded.

Beſides theſe ſpecies we recollect ſeeing taken at the *Giant's Cauſeway* in *Ireland*, a moſt beautiful kind of a vivid green, ſpotted with ſcarlet; and others at *Bandooran*, in the county of *Sligo*, of a pale green. We were at that time inattentive to this branch of natural hiſtory, and can only ſay they were of a ſpecies we have never ſince ſeen.

XXVI. PERCH.

The edges of the gill-covers ſerrated.
Seven branchioſtegous rays.
Body covered with rough ſcales.
Firſt dorſal fin ſpiny; the ſecond ſoft *.

124. COMMON.

Πέρκη *Ariſt. Hiſt. an. Lib.* VI. *c.* 14.
Perca *Auſonii Moſella*, 115.
Une Perche de riviere. *Belon*, 291.
Perca fluviatilis. *Rondel. fluviat.* 196. *Geſner piſc.* 698.
Ein Barſs. *Schonevelde*, 55.
A Perch. *Wil. Ich.* 291. *Raii ſyn. piſc.* 97.
Perca lineis utrinque ſex tranſverſis nigris, pinnis ventralibus rubris. *Arted. ſynon.* 66.
Perca fluviatilis. P. pinnis dorſalibus diſtinctis, ſecunda radiis ſedecim. *Lin. ſyſt.* 481. *Gronov. Zooph.* No. 301.
Abboree. *Faun. Suec.* No. 332.
Perſchling, Barſchieger. *Kram.* 384. *Wulff Boruſs.* No. 27.

THE perch of *Ariſtotle* and *Auſonius* is the ſame with that of the moderns. That mentioned by *Oppian*, *Pliny*, and *Athenæus* †, is a ſea-fiſh probably of the *Labrus* or *Sparus* kind, being enumerated by them among ſome congene-

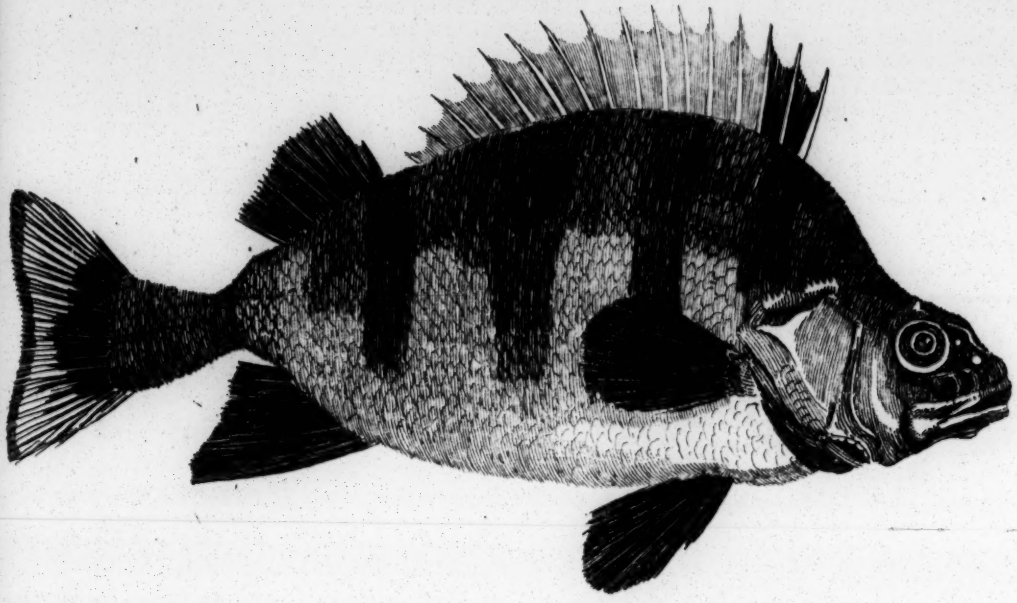
* The *Ruffe* is an exception, having only one dorſal fin, but the fourteen firſt rays of it are ſpiny.

† *Oppian Halieut.* I. 124. *Plinii Lib.* IX. *c.* 16. *Athenæus Lib.* VII. *p.* 319.

rous

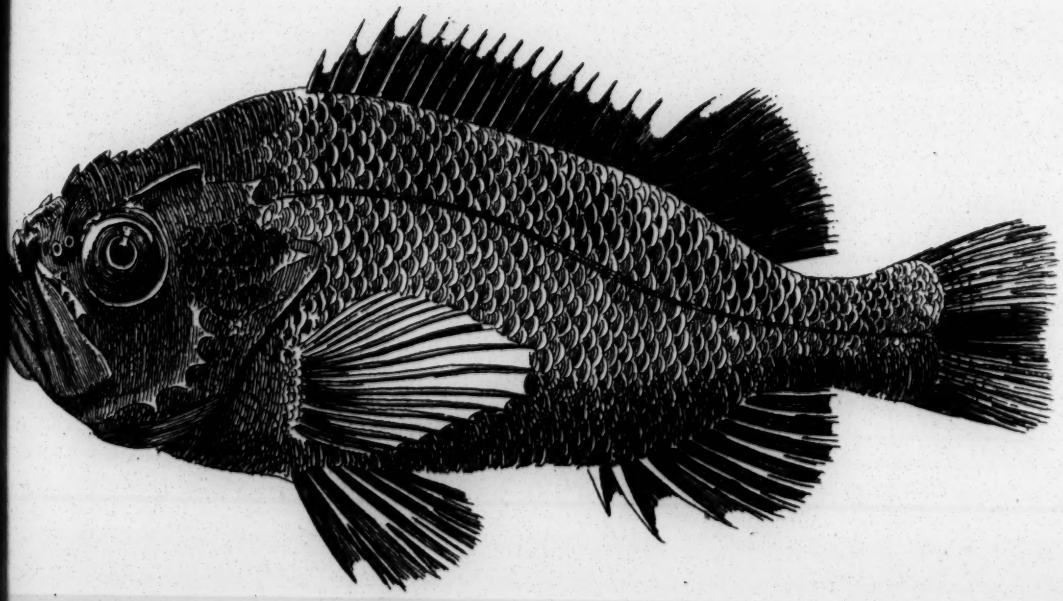
PERCH.

Nº 124.



SEA PERCH.

Nº 126.



M. Griffiths del

rous ſpecies. Our perch was much eſteemed by the *Romans:*

Nec te delicias menſarum Perca, *ſilebo*
Amnigenos inter piſces dignande marinis. Ausonius.

It is not leſs admired at preſent as a firm and delicate fiſh; and the *Dutch* are particularly fond of it when made into a diſh called *Water Soucky.*

It is a gregarious fiſh, and loves deep holes and gentle ſtreams. It is a moſt voracious fiſh, and eager biter: if the angler meets with a ſhoal of them, he is ſure of taking every one.

It is a common notion that the pike will not attack this fiſh, being fearful of the ſpiny fins which the perch erects on the approach of the former. This may be true in reſpect to large fiſh; but it is well known the ſmall ones are the moſt tempting bait that can be laid for the pike.

The perch is a fiſh very tenacious of life: we have known them carried near ſixty miles in dry ſtraw, and yet ſurvive the journey.

Theſe fiſh ſeldom grow to a large ſize: we once heard of one that was taken in the *Serpentine* river, *Hyde-Park*, that weighed nine pounds, but that it is very uncommon. Size.

The body is deep: the ſcales very rough: the back much arched: ſide-line near the back. Descrip.

The irides golden: the teeth ſmall, diſpoſed in the jaws and on the roof of the mouth: the edges of

of the covers of the gills ſerrated: on the lower end of the largeſt is a ſharp ſpine.

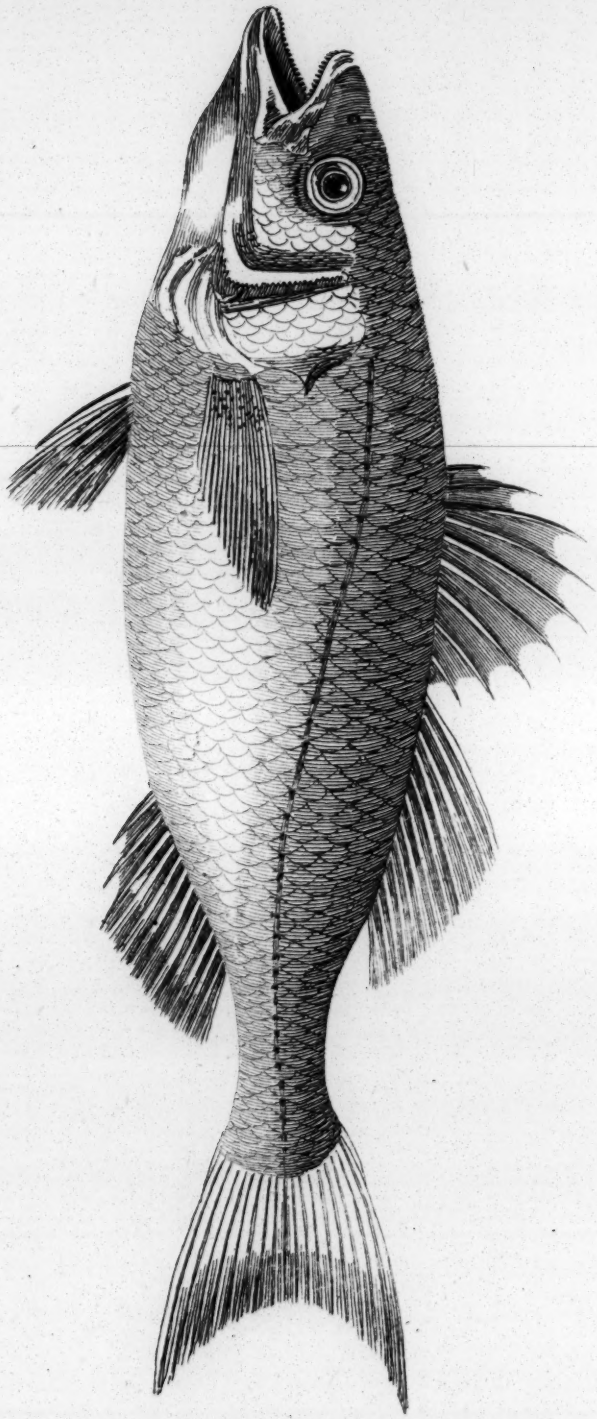
The firſt dorſal fin conſiſts of fourteen ſtrong ſpiny rays: the ſecond of ſixteen ſoft ones: the pectoral fins are tranſparent, and conſiſt of fourteen rays; the ventral of ſix; the anal of eleven.

The tail is a little forked.

Color. The colors are beautiful: the back and part of the ſides being of a deep green, marked with five broad black bars pointing downwards: the belly is white, tinged with red: the ventral fins of a rich ſcarlet; the anal fins and tail of the ſame color, but rather paler.

Crooked Perch. In a lake called *Llyn Raithlyn*, in *Merionethſhire*, is a very ſingular variety of perch: the back is quite hunched, and the lower part of the back bone, next the tail, ſtrangely diſtorted. in color, and in other reſpects, it reſembles the common kind, which are as numerous in the lake as theſe deformed fiſh. They are not peculiar to this water, for *Linnæus* takes notice of a ſimilar variety found at *Fahlun*, in his own country. I have alſo heard that it is to be met with in the *Thames* near *Marlow*.

Λάβραξ?



BASSE.

Λάβραξ? *Ariſt. Hiſt. an. lib.* IV. *c.* 10. &c.
Lupus? *Ovid. Halieut.* 112.
Le Bar, le Loup. *Belon*, 113.
Lupus. *Rondel.* 268. *Geſner piſc.* 506.
A Baſſe. *Wil. Icth.* 271.
Raii ſyn. piſc. 83.
Perca radiis pinnæ dorſalis ſecundæ tredecim, ani quatuordecim. *Arted. ſynon.* 69.
Perca Labrax. *Lin. ſyſt.* 482. *Gronov. Zooph.* No. 300.

125. BASSE.

THE baſſe is a ſtrong, active, and voracious fiſh: *Ovid* calls them *rapidi lupi*, a name continued to them by after-writers.

SIZE.

That which we had an opportunity of examining was ſmall; but they are ſaid to grow to the weight of fifteen pounds.

The irides are ſilvery: the mouth large: the teeth are ſituated in the jaws, and are very ſmall: in the roof of the mouth is a triangular rough ſpace, and juſt at the gullet are two others of a roundiſh form.

The ſcales are of a middling ſize, are very thick ſet, and adhere cloſely.

The firſt dorſal fin has nine ſtrong ſpiny rays, of which the firſt is the ſhorteſt, the middlemoſt the higheſt; the ſecond dorſal fin conſiſts of thirteen rays, the firſt ſpiny, the others ſoft.

The pectoral fins have fifteen ſoft rays; the ventral ſix rays, the firſt ſpiny: the anal fourteen rays, the three firſt ſpiny, the others ſoft: the tail is a little forked.

The body is formed ſomewhat like that of a ſalmon.

The color of the back is duſky, tinged with blue. The belly white. In young fiſh the ſpace above the ſide line is marked with ſmall black ſpots.

It is eſteemed a very delicate fiſh.

126. Sea. Une Perche de mer. *Belon*, 163.
Perca marina. *Salvian*, 225. *Rondel.* 182. *Wil. Icth.* 327. *Raii ſyn. piſc.* 140.
Perca marina. P. pinnis dorſalibus unitis XV. ſpinoſis, XIV. muticis, corpore lituris variegato. *Lin. ſyſt.* 483.

THIS ſpecies is about a foot long: the head large and deformed: eyes great: teeth ſmall and numerous. On the head and covers of the gills are ſtrong ſpines. The dorſal fin is furniſhed with fifteen ſtrong ſpiny rays, and fourteen ſoft: the pectoral with eighteen: the ventral with one ſpiny, and five ſoft: the anal with three ſpiny and eight ſoft: the tail, even at the end: the lateral line parallel to the back. The color red with a black ſpot on the covers of the gills, and ſome tranſverſe duſky lines on the ſides.

It is a fiſh held in ſome eſteem at the table.

Cern

Cernua. *Belon*, 186.
Percæ fluviatilis genus minus. *Geſner piſc.* 701.
Aſpredo. *Caii opuſc.* 107.
Ein ſtuer, ſtuerbarſs. *Schonevelde*, 56.
Cernua fluviatilis. *Wil. Icth.* 334.
Ruffe. *Raii ſyn. piſc.* 143.
Perca dorſo monopterygio, capite cavernoſo. *Arted. ſyn.* 68.
Perca cernua. P. pinnis dorſalibus unitis radiis 27. ſpinis 15. cauda bifida. *Lin. ſyſt.* 487. *Gronov. Zooph.* No.
Giers, Snorgers. *Faun. Suec.* No. 119.
Schroll, Pfaffenlaus. *Schaeff. piſc.* 37. *Tab.* II. *Wulff Boruſs.* No. 35.

127. RUFFE.

THIS fiſh is found in ſeveral of the *Engliſh* ſtreams: it is gregarious, aſſembling in large ſhoals, and keeping in the deepeſt part of the water.

It is of a much more ſlender form than the perch, and ſeldom exceeds ſix inches in length.

The teeth are very ſmall, and diſpoſed in rows.

It has only one dorſal fin extending along the greateſt part of the back: the firſt rays, like thoſe of the perch, are ſtrong, ſharp, and ſpiny; the others ſoft.

The pectoral fins conſiſt of fifteen rays; the ventral of ſix; the anal of eight; the two firſt ſtrong and ſpiny: the tail a little bifurcated.

The body is covered with rough compact ſcales.

The back and ſides are of a dirty green, the laſt inclining to yellow, but both ſpotted with black.

The dorſal fin is ſpotted with black: the tail marked with tranſverſe bars.

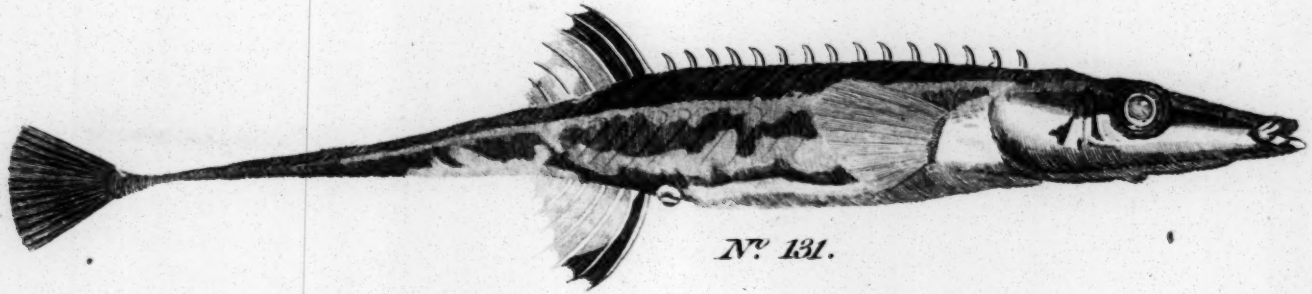
128. BLACK. The Black Fiſh. Mr. *Jago*. *Borlaſe Cornwall*, 271. *Tab.* XXV. *fig.* 8.

MR. *Jago* has left ſo brief a deſcription of this fiſh, that we find difficulty in giving it a proper claſs: it agrees with the *Ruffe* in the form of the body, and the ſmallneſs of the teeth, in having a ſingle extenſive fin on the back, a forked tail, and being of that ſection of bony fiſh, termed *Thoracic:* theſe appear by the figure, the teeth excepted. The other characters muſt be borrowed from the deſcription.

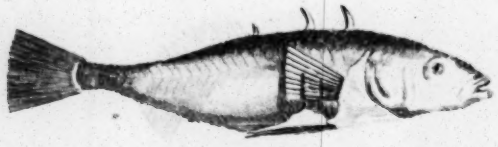
"It is ſmooth, with very ſmall thin ſcales, fif-
"teen inches long, three quarters of an inch
"broad; head and noſe like a peal or trout;
"little mouth; very ſmall teeth, beginning from
"the noſe four inches and three quarters, near
"ſix inches long; a forked tail; a large double
"noſtril. Two taken at *Loo*, *May* 26, 1721, in
"the *Sean*, near the ſhore, in ſandy ground with
"ſmall ore weed."

Three

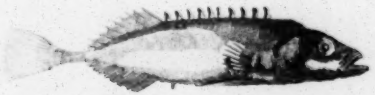
STICKLEBACKS.



N°. 131.



N°. 129.



N°. 130.

XXVIII. STICKLE BACK.

Three branchioſtegous rays.
The belly covered with bony plates.
One dorſal fin, with ſeveral ſharp ſpines between it and the head.

129. THREE SPINED.

La Grande Eſpinoche, un Epinard, une Artiere. *Belon*, 328.
Piſciculi aculeati prius genus. *Rondel. fluviat.* 206. *Geſner piſc.* 8.
Stickleback, Banſtickle, or Sharpling. *Wil. Icth.* 341. *Raii ſyn. piſc.* 145.
Gaſteroſteus aculeis in dorſo tribus. *Arted. ſynon.* 80.
Gaſteroſteus aculeatus. *Lin. ſyſt.* 489. *Gronov. Zooph.* No. 406.
Spigg, Horn-fiſk. *Faun. Suec.* No. 336.
Stichling, Stachel-fiſch. *Wulff Boruſs.* No. 37.

THESE are common in many of our rivers, but no where in greater quantities than in the *Fens* of *Lincolnſhire*, and ſome of the rivers that creep out of them. At *Spalding* there are, once in ſeven or eight years, amazing ſhoals that appear in the *Welland*, and come up the river in form of a vaſt column. They are ſuppoſed to be the multitudes that have been waſhed out of the fens by the floods of ſeveral years, and collected in ſome deep hole, till overcharged with numbers, they are periodically obliged to attempt a change of place. The quantity is ſo great, that they are uſed to manure the land, and trials have been made

to get oil from them. A notion may be had of this vaſt ſhoal, by ſaying that a man employed by the farmer to take them, has got for a conſiderable time four ſhillings a day by ſelling them at a half-penny per buſhel.

DESCRIP. This ſpecies ſeldom reaches the length of two inches: the eyes are large: the belly prominent: the body near the tail ſquare: the ſides are covered with large bony plates, placed tranſverſely.

On the back are three ſharp ſpines, that can be raiſed or depreſſed at pleaſure: the dorſal fin is placed near the tail: the pectoral fins are broad: the ventral fins conſiſt each of one ſpine, or rather plate, of unequal lengths, one being large, the other ſmall; between both is a flat bony plate, reaching almoſt to the vent: beneath the vent is a ſhort ſpine, and then ſucceeds the anal fin.

The tail conſiſts of twelve rays, and is even at the end.

The color of the back and ſides is an olive green; the belly white; but in ſome the lower jaws and belly are of a bright crimſon.

130. TEN SPINED.

La petite Eſpinoche. *Belon*, 328.
Piſciculi aculeati alterum genus. *Rondel. fluviat.* 206. *Geſner piſc.* 8.
Leſſer Stickleback. *Wil. Icth.* 342. *Raii ſyn. piſc.* 145.
Gaſteroſteus aculeis in dorſo decem. *Arted. ſynon.* 80.
Gaſteroſteus pungitius. *Lin. ſyſt.* 491. *Gronov. Zooph.* No. 405.
Benunge, Gaddſur, Gorquad. *Faun. Suec.* No. 337.

THIS ſpecies is much ſmaller than the former, and of a more ſlender make.

The

The back is armed with ten ſhort ſharp ſpines, which do not incline the ſame way, but croſs each other.

The ſides are ſmooth, not plated like thoſe of the preceding: in other particulars it reſembles the former.

The color of the back is olive: the belly ſilvery.

Aculeatus, ſive Pungitius marinus longus, Stein-bicker, Erſkruper. *Schonevelde*, 10. *Tab.* IV. *Sib. Scot.* III. 24. *Tab.* 19.
Aculeatus marinus major. *Wil. Icth.* 340. *App.* 23. *Raii ſyn. piſc.* 145.
Gaſteroſteus aculeis in dorſo quindecim. *Arted. ſynon.* 81.
Gaſteroſteus ſpinachia. *Lin. ſyſt.* 492. *Gronov. Zooph.* No. 407. *Faun. Suec.* No. 338.

131. FIFTEEN SPINED.

THIS ſpecies inhabits the ſea, and is never found in freſh water.

Its length is above ſix inches: the noſe is long and ſlender: the mouth tubular: teeth ſmall.

The fore part of the body is covered on each ſide with a row of bony plates, forming a ridge; the body afterwards grows very ſlender, and is quadrangular.

Between the head and the dorſal fin are fifteen ſmall ſpines: the dorſal fin is placed oppoſite the anal fin: the ventral fins are wanting.

The tail is even at the end.

The color of the upper part is a deep brown: the belly white.

XXIX. MACKREL.

Seven branchioſtegous rays.
Several ſmall fins between the dorſal fin and the tail.

132. COMMON.

Σκόμβρος. *Ariſt. Hiſt. an. Lib.* VI. *c.* 17. IX *c.* 2. *Athenæus, Lib.* III. 121. VII. 321. *Oppian Halieut.* I. 142.
Scomber. *Ovid Halieut.* 94. *Plinii Lib.* IX. *c.* 15. XXXI. *c.* 8.
Macarello, Scombro. *Salvian.* 241*.
Le Macreau. *Belon*, 197.
Scomber. *Rondel.* 233. *Geſner piſc.* 841. (pro 861.)
Makerel. *Schonevelde*, 66.
Mackrell, or Macarel. *Will. Icth.* 181. *Raii ſyn. piſc.* 58.
Scomber pinnulis quinque in extremo dorſo, polypterygio, aculeo brevi ad anum. *Arted. ſynon.* 48.
Scomber Scomber. *Lin. ſyſt.* 492. *Gronov. Zooph.* No. 304.
Mackrill. *Faun. Suec.* No. 339.

THE mackrel is a ſummer fiſh of paſſage that viſits our ſhores in vaſt ſhoals. It is leſs uſeful than other ſpecies of gregarious fiſh, being very tender, and unfit for carriage; not but that it may be preſerved by pickling and ſalting, a method, we believe, practiſed only in *Cornwall*†, where it proves a great relief to the poor during winter.

GARUM. It was a fiſh greatly eſteemed by the *Romans*,

* This is the firſt opportunity we have had of looking into *Salvianus*, whoſe *Italian* ſynonyms we make uſe of.

† *Borlaſe Cornwall*, 269.

becauſe

SCAD.

Nº 134.

MACKREL.

Nº 132.

becauſe it furniſhed the pretious *Garum*, a ſort of pickle that gave a high reliſh to their ſauces, and was beſides uſed medicinally. It was drawn from different kinds of fiſh, but that made from the mackrel had the preference: the beſt was made at *Carthagena*, vaſt quantities of mackrel being taken near an adjacent iſle, called from that circumſtance, *Scombraria* *; and the *Garum*, prepared by a certain company in that city, bore a high price, and was diſtinguiſhed by the title of *Garum Sociorum* †.

This fiſh is eaſily taken by a bait, but the beſt time is during a freſh gale of wind, which is thence called a *mackrel* gale.

In the ſpring the eyes of *mackrel* are almoſt covered with a white film; during which period they are half blind. This film grows in winter, and is caſt the beginning of ſummer.

SIZE. It is not often that it exceeds two pounds in weight, yet we heard that there was one ſold laſt ſummer in *London* that weighed five and a quarter.

DESCRIP. The noſe is taper and ſharp-pointed: the eyes large: the jaws of an equal length: the teeth ſmall, but numerous.

The form of this fiſh is very elegant.

The body is a little compreſſed on the ſides: towards the tail it grows very ſlender, and a little angular.

* *Strabo Lib.* III. 109.

† *Plinii Lib.* XXXI. *c.* 8.

The

The firſt dorſal fin is placed a little behind the pectoral fin, is triangular, and conſiſts of nine or ten ſtiff rays; the ſecond lies at a diſtance from the other, and has twelve ſoft rays; the pectoral twenty; the ventral ſix: at the baſe of the anal fin is a ſtrong ſpine.

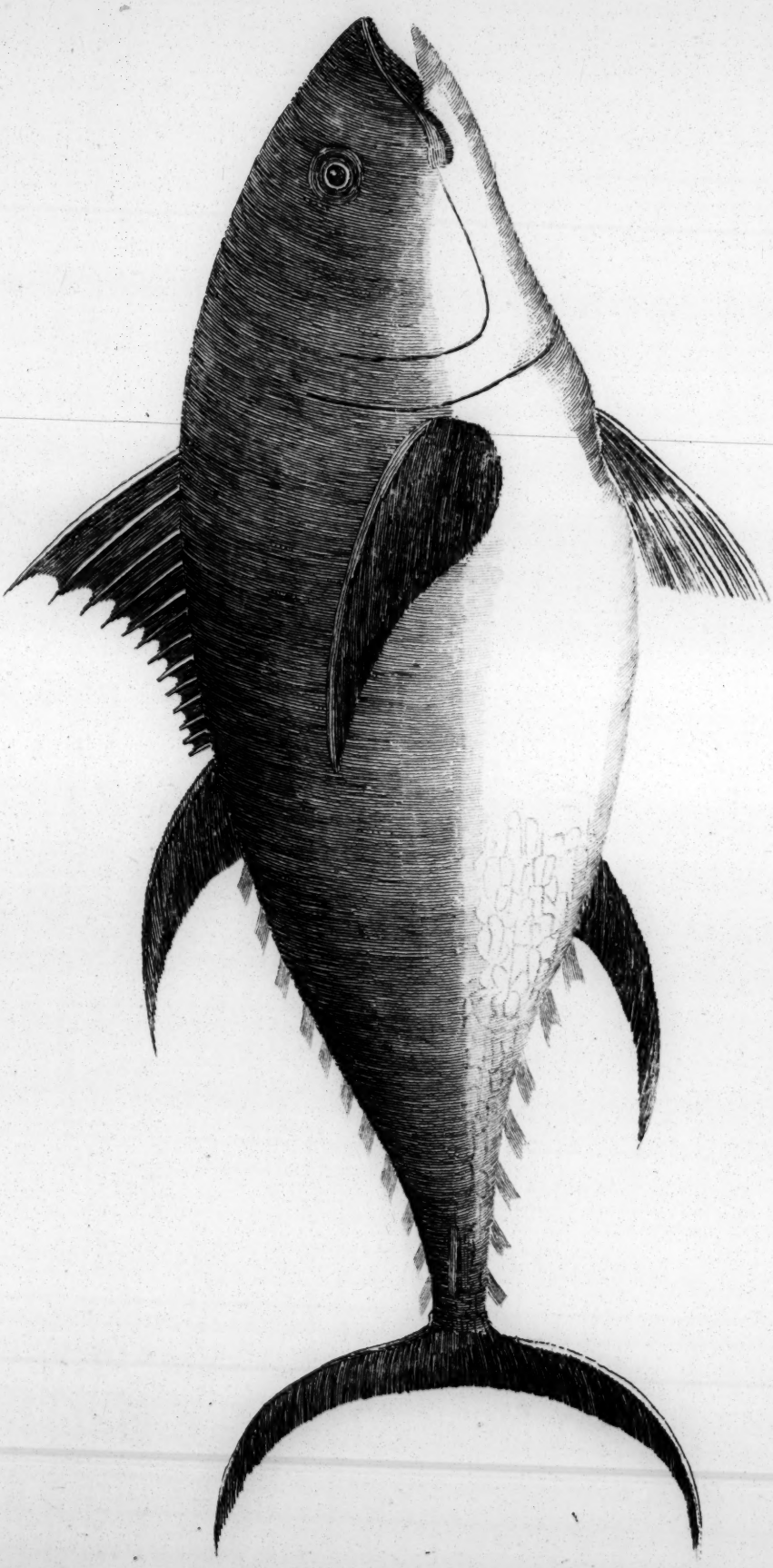
Between the laſt dorſal fin and the tail, are five ſmall fins, and the ſame number between the anal fin and the tail.

COLOR. The tail is broad and ſemilunar: the color of the back and ſides above the lateral line, is a fine green, varied with blue, marked with black lines, pointing downwards; beneath the line the ſides and belly are of a ſilvery color.

It is a moſt beautiful fiſh when alive; for nothing can equal the brilliancy of its color, which death impairs, but does not wholly obliterate.

133. TUNNY. Θυννος. *Ariſt. Hiſt. an. Lib.* II. *c.* 13. &c. *Athenæus, Lib.* VII. 301. *Oppian Halieut.* III. 620.
Thunnus. *Ovid Halieut.* 95. *Plinii Lib.* IX. *c.* 15.
Tonno. *Salvian.* 123.
Le Thon. *Belon,* 99.
Thunnus. *Rondel.* 241. *Geſner piſc.* 957.
Thunnus vel orcynus. *Schonevelde,* 75.
Tunny fiſh, or Spaniſh Mackrell. *Wil. Icth.* 176. *Raii ſyn. piſc.* 57. *Sibbald Scot.*
Scomber pinnulis octo vel novem in extremo dorſo, ex ſulco ad pinnas ventrales. *Arted. ſynon.* 49.
Scomber Thunnus. Sc. pinnulis utrinque octo. *Lin. ſyſt.* 493. *Gronov. Zooph.* No. 305.

THE tunny was a fiſh well known to the antients, it made a conſiderable branch of commerce;



TUNNY.

merce; the time of its arrival into the *Mediterranean* from the ocean was obſerved, and ſtations for taking them eſtabliſhed in places it moſt frequented; the eminencies above the fiſhery were ſtyled Θυννοσκοπεῖα *, and the watchmen that gave notice to thoſe below of the motions of the fiſh, Θυννοσκόποι †. From one of the former the lover in *Theocritus* threatened to take a deſperate leap, on account of his miſtreſs's cruelty.

ἢ κ ἐπακουεις ?
Τάν Ϝαίταν ἀποδὺς εἰς κυματα τηνα ἀλευμαι
Ωπερ τὼς ΘΥΝΝΩΣ σκοπιὰζεται Ὄλπις ο γριπεύς.

Do you not hear? then, rue your Goat-herd's fate,
For, from the rock where *Olpis* doth deſcry
The numerous *Thunny*, I will plunge and die.

The very ſame ſtation, in all probability, is at this time made uſe of, as there are very conſiderable thunny fiſheries on the coaſt of *Sicily*, as well as ſeveral other parts of the *Mediterranean*‡, where they are cured, and make a great article of proviſion in the adjacent kingdoms. They are caught

* *Strabo Lib.* V. 156.

† *Oppian Halieut.* III. 638. This perſon anſwers to what the *Corniſh* call a *Huer*, who watches the arrival of the pilchards.

‡ Many of them are the ſame that were uſed by the antients, as we learn from *Oppian* and others.

in

in nets, and amazing quantities are taken, for they come in vaſt ſhoals, keeping along the ſhores.

They frequent our coaſts, but not in ſhoals like the Tunnies of the *Mediterranean*. They are not uncommon in the *Lochs* on the weſtern coaſt of *Scotland*; where they come in purſuit of herrings; and, often during night, ſtrike into the nets, and do conſiderable damage. When the fiſhermen draw them up in the morning, the Tunny riſes at the ſame time towards the ſurface, ready to catch the fiſh that drop out. On perceiving it, a ſtrong hook baited with a herring, and faſtened to a rope, is inſtantly flung out, which the Tunny ſeldom fails to take. As ſoon as hooked, it loſes all ſpirit; and after a very little reſiſtance, ſubmits to its fate. It is dragged to the ſhore and cut up, either to be ſold freſh to people who carry it to the country markets, or is preſerved ſalted in large caſks.

The pieces, when freſh, look exactly like raw beef; but when boiled turn pale, and have ſomething of the flavor of ſalmon.

One, which was taken when I was at *Inveraray* in 1769, and was weighed for my information, weighed 460 pounds.

The fiſh, I examined, was ſeven feet ten inches long: the greateſt circumference five feet ſeven; the leſt near the tail one foot ſix. The body was round and thick, and grew ſuddenly very ſlender towards the tail; and near that part was angular.

The

The *irides* were of a pale green: the teeth very minute.

The firſt dorſal fin conſiſted of thirteen ſtrong ſpines; which, when depreſſed, were ſo concealed in a deep ſlit in the back, as to be quite inviſible till very cloſely inſpected. Immediately behind this fin was another, tall and falciform: almoſt oppoſite to it, was the anal fin, of the ſame form. The ſpurious fins were of a rich yellow color: of theſe there were eleven above, and ten below.

The tail was in form of a creſcent; and two feet ſeven inches between tip and tip.

The ſkin on the back was ſmooth, very thick, and black. On the belly the ſcales were viſible. The color of the ſides and belly ſilvery, tinged with cærulean and pale purple: near the tail marbled with grey.

They are known on the coaſt of *Scotland* by the name of *Mackrelſture*: *Mackrel*, from being of that genus; and *ſture*, from the *Daniſh*, *ſtor*, great.

Sauro. *Salvian.* 79.
Un Sou, Macreau baſtard. *Belon*, 186.
Trachurus. *Rondel.* 233.
Lacertus *Bellonii*. *Geſner piſc.* 467.
Muſeken, Stocker. *Schonevelde*, 75.
Scad, Horſe-mackrell. *Wil. Icth.* 290. *Raii ſyn. piſc.* 92.
Scomber linea laterali aculeata, pinna ani officulorum 30. *Arted. ſynon.* 50.
Scomber Trachurus. Sc. pinnis unitis, ſpina dorſali recumbente, linea laterali loricata. *Lin. ſyſt.* 494. *Gronov. Zooph.* No. 308.

134. SCAD

THAT which we examined was ſixteen inches long: the noſe ſharp; the eyes very large; the

the irides ſilvery: the lower jaw a little longer than the upper: the edges of the jaws were rough, but without teeth.

On the upper part of the covers of the gills was a large black ſpot.

The ſcales were large and very thin: the lower half of the body quadrangular, and marked each ſide with a row of thick ſtrong ſcales, prominent in the middle, extending to the tail.

The firſt dorſal fin conſiſted of eight ſtrong ſpines: the ſecond lay juſt behind it, and conſiſted of thirty-four ſoft rays, and reached almoſt to the tail. The pectoral fins narrow and long, and compoſed of twenty rays: the ventral of ſix branched rays.

The vent was in the middle of the belly; the anal fin extended from it to the tail, which was greatly forked.

The head and upper part of the body varied with green and blue: the belly ſilvery.

This fiſh was taken in the month of *October*; was very firm and well taſted, having the flavor of mackrel.

Head

XXX. SURMULLET.

Head compreſſed, ſteep, and covered with ſcales.
Two branchioſtegous rays.
Body covered with large ſcales, eaſily dropping off.

Τρίγλη? *Ariſt. Hiſt. an. Lib.* II. *Oppian Halieut.* I. 590.
Τρίγλη Σώφρων. *Athenæus, Lib.* VII. 325.
Mullus. *Ovid Halieut.* 123. *Plinii Lib.* IX. *c.* 17.
Triglia. *Salvian.* 235.
Le Rouget barbé, Surmurlet. *Belon,* 170.
Mullus barbatus. *Rondel.* 290. *Geſner piſc.* 565.
Petermanneken, Goldeken. *Schonevelde,* 47.
Mullus *Bellonii. Wil. Icth.* 285. *Raii ſyn. piſc.* 90.
Trigla capite glabro, cirris geminis in maxilla inferiore. *Arted. ſynon.* 71.
Mullus cirris geminis, corpore rubro. *Lin. ſyſt.* 495. *Gronov. Zooph.* No. 286.

135. RED.

THIS fiſh was highly eſteemed by the *Romans*, and bore an exceeding high price. The capricious epicures of *Horace*'s * days, valued it in proportion to its ſize; not that the larger were more delicious, but that they were more difficult to be got. The price that was given for one in the time of *Juvenal*, and *Pliny*, is a ſtriking evidence of the luxury and extravagance of the age:

Mullum *ſex millibus emit*
Æquantem ſane paribus ſeſtertia libris †.

* *Sat. Lib.* II. *ſ.* II. 33.
† *Juvenal Sat.* IV. 481. 8*s.* 9*d.*

The

The laviſh ſlave
Six thouſand pieces for a Mullet gave,
A ſeſterce for each pound. DRYDEN.

But *Aſinius Celer* *, a man of conſular dignity, gave a ſtill more unconſcionable ſum, for he did not ſcruple beſtowing eight thouſand nummi, or ſixty-four pounds eleven ſhillings and eight-pence, for a fiſh of ſo ſmall a ſize as the mullet; for according to *Horace*, a *Mullus trilibris*, or one of three pounds, was a great rarity; ſo that *Juvenal*'s ſpark muſt have had a great bargain in compariſon of what *Celer* had.

But *Seneca* ſays that it was not worth a farthing, except it died in the very hand of your gueſt: that ſuch was the luxury of the times, that there were ſtews even in the eating rooms, ſo that the fiſh could at once be brought from under the table, and placed on it: that they put the mullets in tranſparent vaſes, that they might be entertained with the various changes of its rich color while it lay expiring †. *Apicius* ‡, a wonderful genius

* *Plin. Lib.* IX. *c.* 17.

† *In cubili natant piſces: et ſub ipſa menſa capitur, qui ſtatim transferitur in menſam: parum videtur recens* mullus *niſi qui in convivæ manu moritur. Vitreis ollis incluſi offeruntur, et obſervatur morientium color, quem in multas mutationes luctante ſpiritu vertit.* Seneca Nat. Quæſt. *Lib.* III. *c.* 16.

‡ *Ad omne luxus ingenium mirus.*

for

for luxurious inventions, firſt hit upon the method of ſuffocating them in the exquiſite *Carthaginian* * pickle, and afterwards procured a rich ſauce from their livers. This is the ſame gentleman whom *Pliny*, in another place, honors with the title of *Nepotum omnium altiſſimus gurges* †, an expreſſion too forcible to be rendered in our language.

We have heard of this ſpecies being taken on the coaſt of *Scotland*, but had no opportunity of examining it; and whether it is found in the weſt of *England* with the other ſpecies, or variety, we are not at this time informed. *Salvianus* makes it a diſtinct ſpecies, and ſays, that it is of a purple color, ſtriped with golden lines, and that it did not commonly exceed a palm in length: no wonder then that ſuch a prodigy as one of ſix pounds ſhould ſo captivate the fancy of the *Roman* epicure.

Mr. *Ray* eſtabliſhes ſome other diſtinctions, ſuch as the firſt dorſal fin having nine rays, and the color of that fin, the tail, and the pectoral fins, being of a very pale purple.

On theſe authorities we form different ſpecies of theſe fiſh, having only examined what *Salvianus* and Mr. *Ray* call the *Mullus major*, which we deſcribe under the title of

* *Garum Sociorum*, vide p. 222.

† *Lib.* X. *c.* 48.

136. STRIPED.

Mullus major. *Salvian.* 236.
Mullus major noſter et *Salviani.* 95. *Cornubienſibus.*
A Surmullet. *Wil. Icth.* 285. *Raii ſyn. piſc.* 91.
Trigla capite glabro, lineis utrinque quatuor luteis, longitudinalibus, parallelis. *Arted ſynon.* 72.
Mullus cirris geminis lineis luteis longitudinalibus. *Lin. ſyſt.* 496.

THIS ſpecies was communicated to us by Mr. *Pitfield* of *Exeter:* its weight was two pounds and an half; its length was fourteen inches; the thickeſt circumference eleven. It appears on the coaſt of *Devonſhire* in *May*, and retires about *November.*

The head ſteep: the noſe blunt: the body thick: the mouth ſmall: the lower jaw furniſhed with very ſmall teeth: in the roof of the mouth is a rough hard ſpace: at the entrance of the gullet above is a ſingle bone, and beneath are a pair, each with echinated ſurfaces, that help to comminute the food before it paſſes down.

From the chin hung two beards, two inches and a half long.

The eyes large: the irides purple: the head and covers of the gills very ſcaly.

The firſt dorſal fin was lodged in a deep furrow, and conſiſted of ſix ſtrong, but flexible rays; the ſecond of eight; the pectoral fins of ſixteen; the ventral of ſix branched rays; the anal of ſeven: the tail is much forked.

STRIPED SURMULLET.

P. Mazell del. Scap.

The body very thick, and covered with large ſcales; beneath them the color was a moſt beautiful roſy red *; the changes of which, under the thin ſcales, gave that entertainment to the *Roman* epicures as above mentioned: the ſcales on the back and ſides were of a dirty orange; thoſe on the noſe a bright yellow: the tail a reddiſh yellow.

The ſides were marked lengthways with two lines of a light yellow color: theſe, with the red color of the dorſal fins, and the number of their rays, Mr. *Ray* makes the character of the *Corniſh Surmullet:* theſe are notes ſo liable to vary by accident, that till we receive further information from the inhabitants of our *weſtern* coaſts, where theſe fiſh are found, we ſhall remain doubtful whether we have done right in ſeparating this from the former, eſpecially as *Doctor Gronovius* has pronounced them to be only varieties.

* This color is moſt vivid during ſummer.

XXXI. GURNARD.

Noſe ſloping.
Head covered with ſtrong bony plates.
Seven branchioſtegous rays.
Three ſlender appendages at the baſe of the pectoral fins.

137. GREY.

Gurnatus ſeu Gurnardus griſeus, the Grey Gurnard. *Wil. Icth.* 279. *Raii ſyn. piſc.* 88.

Trigla vario roſtro diacantho, aculeis geminis ad utrumque oculum. *Arted. ſynon.* 74.

Trigla Gurnardus, Tr. digitis ternis dorſo maculis nigris rubriſque. *Lin. ſyſt.* 497. *Gronov. Zooph.* No. 283.

THE noſe pretty long, and ſloping: the end bifurcated, and each ſide armed with three ſhort ſpines.

The eyes very large; above each were two ſhort ſpines: the forehead and covers of the gills ſilvery; the laſt finely radiated.

The teeth ſmall, placed in the lower and upper jaws, in the roof of the mouth, and baſe of the tongue.

Noſtrils minute, and placed on the ſides of the noſe.

On the extremity of the gill covers was a ſtrong, ſharp, and long ſpine: beneath that, juſt above the pectoral fins, another.

The

GREY GURNARD.

The firſt dorſal fin conſiſted of eight ſpiny rays; the ſides of the three firſt tuberculated.

The ſecond dorſal fin of nineteen ſoft rays: both fins lodged in a groove, rough on each ſide, but not ſerrated.

The pectoral fins do not extend as far as the anal fins, are tranſparent, and ſupported by ten rays, bifurcated from their middle: the three beards at their baſe as uſual.

The ventral fins had ſix rays, the firſt ſpiny, and the ſhorteſt of all.

The anal fin nineteen, each ſoft.

The tail bifurcated.

The lateral line very prominent, ſtrongly ſerrated, and of a ſilvery color.

The back, tail, and a ſmall ſpace beneath the ſide line, were of a deep grey, covered with ſmall ſcales, and in parts ſpotted with white and yellow; the belly ſilvery.

Theſe fiſh are uſually taken with the hook in deep water, bite eagerly even at a red rag; and ſometimes are fond of ſporting near the ſurface. They are often found of the length of two feet and a half.

138. RED.

Κόκκυξ? *Ariſt. Hiſt. an. lib.* IV. *c.* 9. *Oppian Halieut.* I. 97.

Κοκκυξ ἐρυθρος. *Athenæus lib.* VII. 309.

Peſce capone, Cocco, Organo. *Salvian.* 191.

Le Rouget. *Belon*, 199.

Cuculus. *Rondel.* 287. *Geſner piſc.* 305.

Smiedecknecht, Kurre-fiſche. *Schonevelde*, 32.

Red Gurnard, or Rotchet. *Wil. Icth.* 281. *Raii ſyn. piſc.* 89.

Trigla tota rubens, roſtro parum bicorni, operculis branchiarum ſtriatis. *Arted ſynon.* 74.

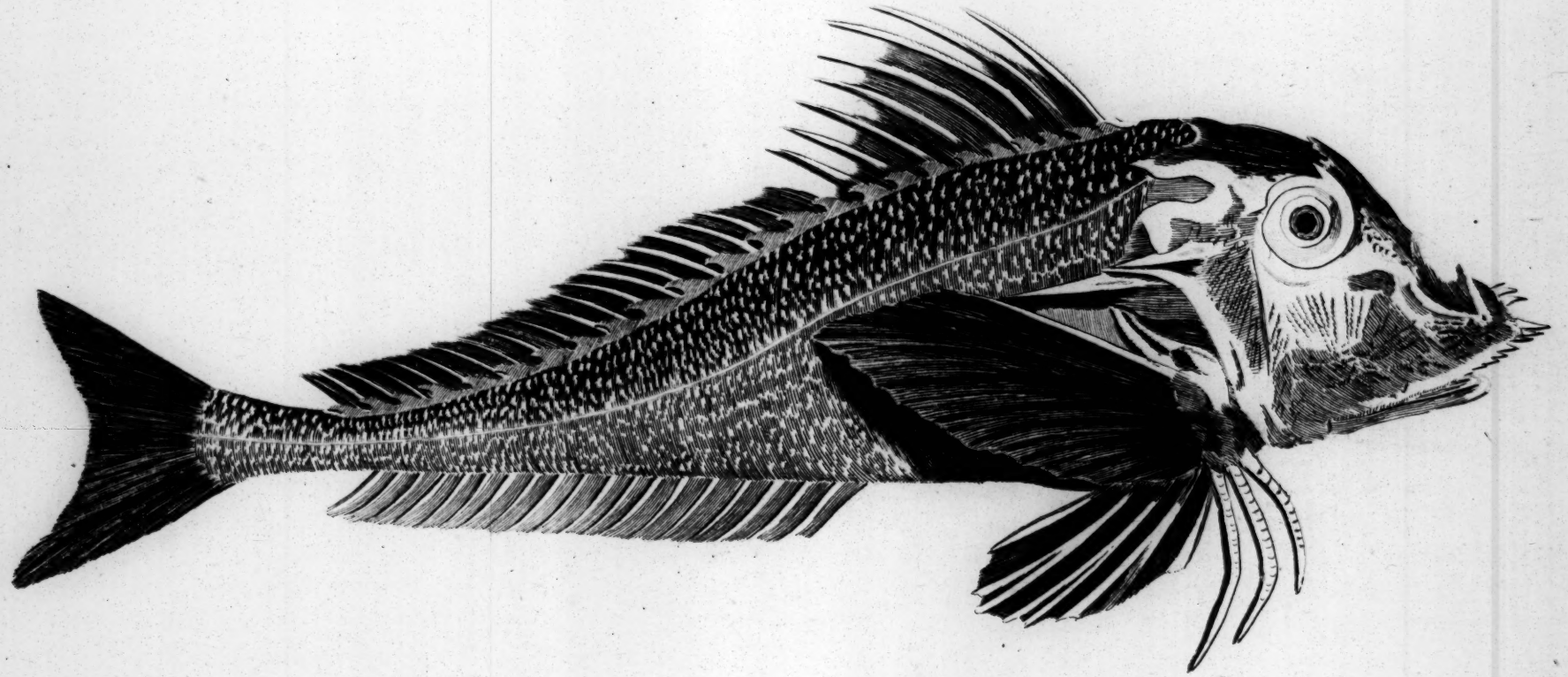
Trigla cuculus. Tr. digitis ternis, linea laterali mutica. *Lin. ſyſt.* 497.

THIS ſpecies agrees in its general appearance with the tub fiſh; but in theſe particulars differs.

The covers of the gills are radiated: the ſpines are longer and ſlenderer in thoſe of the red gurnard. The noſe armed on each ſide with two ſharp ſpines.

The fins and body are of a fuller red: the ſcales are larger: head leſs and narrower: the pectoral fins are edged with purple, not with blue: are much ſhorter, for when extended they do not reach to the anal fin. The ſide line is ſtrongly ſerrated: the top of the back leſs ſo than that of the tub fiſh. The tail red and almoſt even at the end.

Ανρα;



G Haultier punx

P Mazell fe

Δυφα? *Ariſt. Hiſt. an. lib.* IV. *c.* 9.
Lyra. *Rondel.* 298. *Geſner piſc.* 516.
The Piper. *Wil. Icth.* 282. *Raii ſyn. piſc.* 89.
Trigla roſtro longo diacantho, naribus tubuloſis. *Arted. ſyn.* 74.
Trigla Lyra. Tr. digitis ternis, naribus tubuloſis. *Lin. ſyſt.* 496.

139. PIPER.

THIS ſpecies is frequently taken on the weſtern coaſts of this kingdom, and eſteemed an excellent fiſh. It is alſo found off *Angleſea*.

The weight of one which was communicated to us by Mr. *Pitfield* *, was three pounds and an half; the thickeſt circumference thirteen inches, the leſt, which was next the tail, only three: the length near two feet.

The head was very large, and that part of the body next to it very thick: the noſe divided into two broad plates, each terminated with three ſpines: on the inner corner of each eye is a ſtrong ſpine: the bony plates of the head terminate on each ſide with another.

The covers of the gills are armed with one very ſharp and ſtrong ſpine, and are prettily ſtriated: immediately over the pectoral fin is another ſpine very large and ſharp pointed.

* We have been informed, that this fiſh is found at all times of the year on the weſtern coaſts, and is taken in nets.

The noſtrils very minute: the eyes large.

The lower jaw much ſhorter than the upper: the teeth in both very minute.

The firſt dorſal fin conſiſted of nine very ſtrong ſharp ſpines, the ſecond of which is the longeſt; the ſecond fin begins juſt behind the firſt, and conſiſts of eighteen ſoft rays: the pectoral fins were long, and had twelve branched rays; the ventral fins ſix, very ſtrong and thick: the anal eighteen, the firſt ſpiny: the tail ſmall, in proportion to the ſize of the fiſh, and forked.

The back on each ſide the dorſal fin was armed with a ſet of ſtrong and very large ſpines, pointing towards the tail like the teeth of a ſaw.

The ſcales were ſmall, but very hard and rough: the lateral line bent a little at its beginning, that went ſtrait to the tail, and was almoſt ſmooth.

140. SAPPHIRINE.

Hirundo *Aldrov.* The Tub-fiſh, *Cornub. Wil Icth.* 280. *Raii ſyn. piſc.* 88.

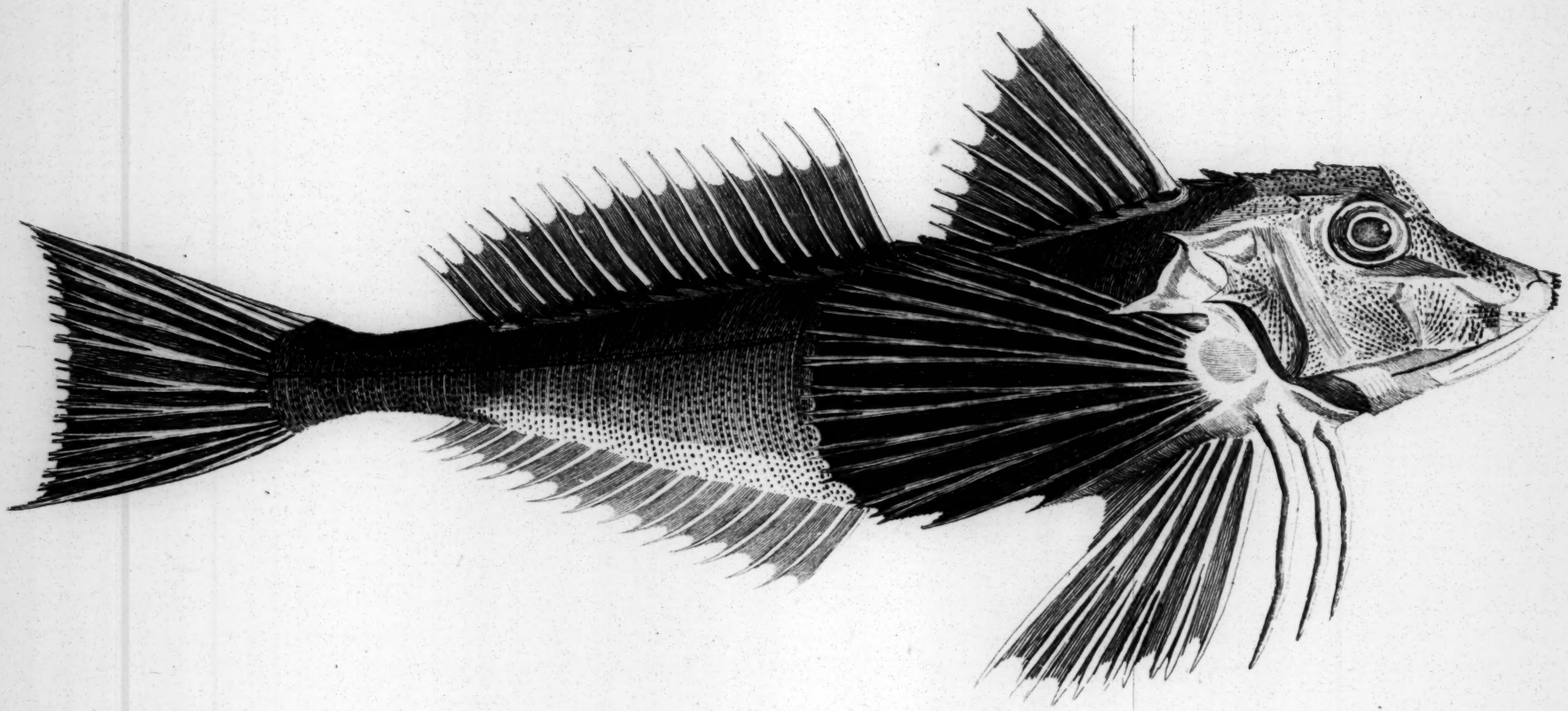
Trigla capite aculeato, appendicibus utrinque tribus ad pinnas pectorales. *Arted. ſynon.* 73.

Trigla hirundo. Tr. digitis ternis, linea laterali aculeata. *Lin. ſyſt.* 497.

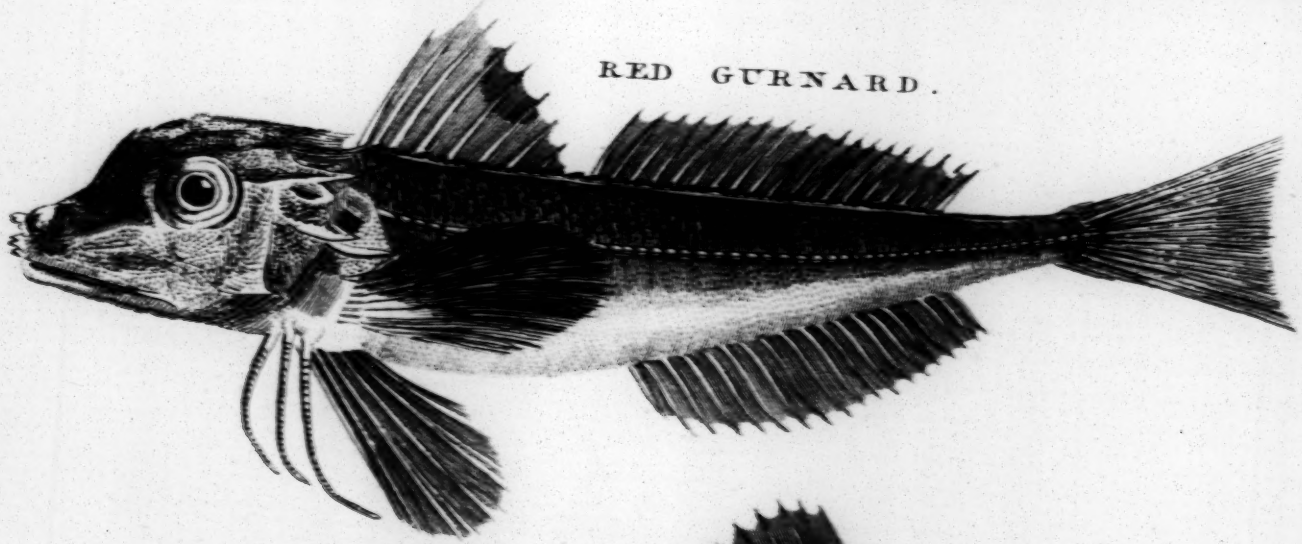
Knorrhane, Knoding, Knot, Smed. *Faun. Suec.* No. 340.

THIS ſpecies is of a more ſlender form than the preceding.

The pupil of the eye is green: on the inner corner



RED GURNARD.





STREAKED GURNARD.

ner of each are two ſmall ſpines. But what at once diſtinguiſhes this from the other ſpecies is the breadth and colors of the pectoral fins, which are very broad and long, of a pale green, moſt beautifully edged, and ſpotted with rich deep blue.

The dorſal fins are lodged between two rows of ſpines, of a ſerrated form: the back is of a greeniſh caſt: the ſide line is rough: the ſides are tinged with red; the belly white.

Theſe fiſh are found on the coaſt of *Cornwall*. We have alſo taken them off *Angleſea*.

Cuculus lineatus, the Streaked Gurnard. *Raii ſyn. piſc.* 165. *fig.* 11. 141. STREAKED.

THIS is one of the *Corniſh* fiſh communicated to Mr. *Petiver* by Mr. *Jago*. He ſays the head is large, and diſtinguiſhed with ſtellated marks; the eyes great; the covering of the gills thorny; the mouth ſmall, and without teeth. By the figure the noſe ſeems not to be bifurcated. The pectoral fins large, and ſpotted, beneath them three filaments: the color of the body red: the belly white, marked with many ſtreaks, pointing downwards, from the back.

Mr. *Jago* imagines it to be the *Mullis imberbis* of *Rondeletius*. *Wil. Icth.* 278.

SECT.

SECT. IV. ABDOMINAL.

XXXII. LOCHE.

Eyes in the upper part of the head.
Aperture to the gills cloſed below.
Several beards on the end of the upper jaw.
Body of almoſt an equal thickneſs.
One dorſal fin.

142. BEARDED.

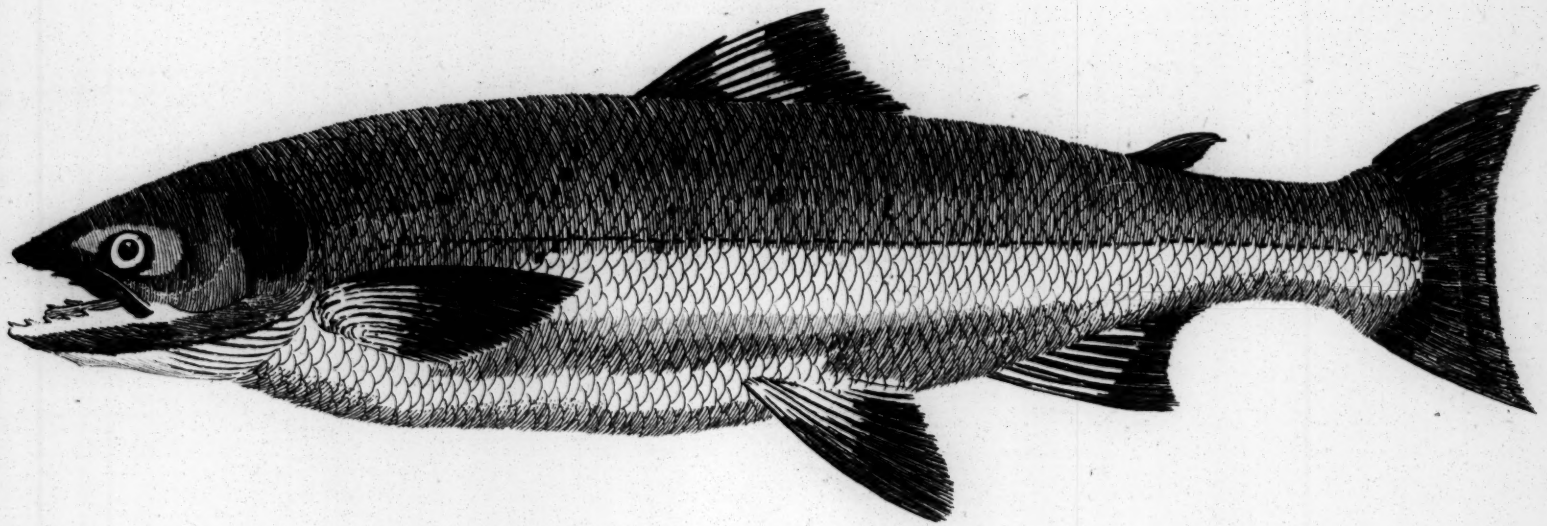
La Loche franche. *Belon*, 321.
Cobitis barbatula. *Rondel. fluviat.* 204.
Cobitis fluviatilis barbatula. *Geſner piſc.* 404.
Smerling, Smerle. *Schonevelde*, 31.
Loche, or Groundling. *Wil. Icth.* 265. *Raii ſyn. piſc.* 124.
Cobitis tota glabra maculoſa, corpore ſubtereti. *Arted. ſynon.* 2.
Cobitis Barbatula. C. cirris ſex capite inermi compreſſo. *Lin. ſyſt.* 499. *Gronov. Zooph.* No. 202.
Gronling. *Faun. Suec.* No. 341.
Grundel. *Kram.* 396. *Wulff. Boruſs.* No. 40.

THE loche is found in ſeveral of our ſmall rivers, keeping at the bottom on the gravel, and is on that account, in ſome places, called the *Groundling*: it is frequent on the ſtream near *Ameſbury*, in *Wiltſhire*, where the ſportſmen, through frolick, ſwallow it down alive in a glaſs of white wine.

The largeſt we ever heard of was four inches and three quarters in length, but they ſeldom arrive to that ſize.

The

SALMON.



LOCHE.

Nº 142.



The mouth is ſmall, placed beneath, and has no teeth: on the upper mandible are ſix ſmall beards, one at each corner of the mouth, and four at the end of the noſe.

The dorſal fin conſiſts of eight rays; the pectoral of eleven; the ventral of ſeven; the anal of ſix: the tail is broad, and has ſixteen or ſeventeen rays.

The body is ſmooth and ſlippery, and almoſt of the ſame thickneſs: the color of the head, back, and ſides, is in ſome white, in others of a dirty yellow, very elegantly marked with large ſpots, conſiſting of numberleſs minute black ſpecks: the pectoral, dorſal, and caudal fins are alſo ſpotted: the belly and ventral fins of a pure white: the tail broad, and a little rounded. Color.

Branchi-

XXXIII. SALMON. Branchioſtegous rays unequal in number.
Two dorſal fins; the ſecond thick, and without rays.

* With teeth.

143. SALMON.
Salmo *Plinii Lib.* IX. *c.* 18. *Auſonius Moſel.* 97.
Salmone. *Salvian.* 100.
Le Saulmon. *Belon*, 271.
Salmo. *Rondel. fluviat.* 167. *Geſner piſc.* 824. *Schonevelde*, 64.
Salmon. *Wil. Icth.* 189. *Raii ſyn. piſc.* 63.
Salmo roſtro ultra inferiorem maxillam ſæpe prominente. *Arted. ſynon.* 22.
Salmo Salar. *Lin. ſyſt.* 509. *Gronov. Zooph.* No. 369.
Lax. *Faun. Suec.* No. 122.
Lachſs. *Wulff. Boruſs.* No. 42.

THE ſalmon is a northern fiſh, being unknown in the *Mediterranean* ſea, and other warm climates: it is found in *France* in ſome of the rivers that empty themſelves into the ocean*, and north as far as *Greenland*; they are alſo very common in *Newfoundland*, and the northern parts of *North America*. Salmons are taken in the rivers of *Kamtſchatka*†, but whether they are of the

* *Rondel. fluviat.* 167.

† *Hiſt. Kamtſch.* 143.

said that none of the rivers that
into the Mediterranean have
known.

ſame ſpecies with the *European* kind is not very certain.

They are in ſeveral countries a great article of commerce, being cured different ways, by ſalting, pickling, and drying: there are ſtationary fiſheries in *Iceland*, *Norway* *, and the *Baltic*, but we believe no where greater than thoſe at *Colraine* in *Ireland*; and in *Great Britain* at *Berwick*, and in ſome of the rivers of *Scotland*.

The ſalmon was known to the *Romans*, but not to the *Greeks*: *Pliny* ſpeaks of it as a fiſh found in the rivers of *Aquitaine*: *Auſonius* enumerates it among thoſe of the *Moſel*.

Nec te puniceo rutilantem viſcere Salmo
Tranſierem, latæ cujus vaga verbera caudæ
Gurgite de medio ſummas referuntur in undas,
Occultus placido cum proditur æquore pulſus.
Tu loricato ſquamoſus pectore, frontem
Lubricus, et dubiæ facturus fercula cænæ,
Tempora longarum fers incorrupta morarum,
Præſignis maculis capitis, cui prodiga nutat
Alvus, opimatoque fluens abdomine venter.

Nor I thy ſcarlet belly will omit,
O Salmon, whoſe broad tail with whiſking ſtrokes
Bears thee up from the bottom of the ſtream
Quick to the ſurface; and the ſecret laſh
Below, betrays thee in the placid deep.
Arm'd in thy flaky mail, thy gloſſy ſnout

* There was, about the year 1578, a pretty conſiderable ſalmon fiſhery at *Cola*, in *Ruſſian Lapland*. *Hackluyt. voy.* 1. 416.

Slippery

Slippery eſcapes the fiſher's fingers; elſe
Thou makeſt a feaſt for niceſt judging palates:
And yet long uncorrupted thou remaineſt:
With ſpotted head remarked, and wavy ſpread,
Of paunch immenſe o'erflowing wide with fat.

ANONYMOUS.

ASCENDS RIVERS.

The ſalmon is a fiſh that lives both in the ſal and freſh waters, quitting the ſea at certain ſeaſon for the ſake of depoſiting its ſpawn in ſecurity, in th gravelly beds of rivers remote from their mouths There are ſcarce any difficulties but what the will overcome, in order to arrive at places fit fo their purpoſe: they will aſcend rivers hundreds o miles, force themſelves againſt the moſt rapi ſtreams, and ſpring with amazing agility over ca taracts of ſeveral feet in height. Salmon are fre quently taken in the *Rhine* as high up as *Baſil*

SALMON LEAPS.

they gain the ſources of the *Lapland* rivers* i ſpite of their torrent-like currents, and ſurpaſs th perpendicular falls of *Leixſlip* †, *Kennerth* ‡, an *Pont aberglaſtyn* §; theſe laſt feats we have bee witneſs to, and ſeen the efforts of ſcores of fiſh, ſom of which ſucceeded, others miſcarried during th time of our ſtay.

* *Scheff. Lap.* 139.

† Near *Dublin*.

‡ On the *Tiwy* in *South Wales*, which *Michael Drayton* cel brates in his *Polyolbion* on this account.

§ Amidſt *Snowdon* hills, a wild ſcene in the ſtyle of *Salvat Roſa*.

It may here be proper to contradict the vulgar error of their taking their tail in their mouth when they attempt to leap; ſuch as we ſaw, ſprung up quite ſtraight, and with a ſtrong tremulous motion.

Other particulars relating to the natural hiſtory of this fiſh, we ſhall relate in our accounts of the fiſheries, either from our own obſervations, or from ſuch as have been communicated to us from different places: the fulleſt we have been favoured with, is from the late Mr. *Potts*, of *Berwick*, to whom the public is indebted for the following very curious hiſtory of the ſalmon fiſhery on the *Tweed*.

SPAWNING. At the latter end of the year, or in the month of *November*, the ſalmon begin to preſs up the rivers as far as they can reach, in order to ſpawn; when that time approaches they ſearch for a place fit for the purpoſe: the male and female unite in forming a proper receptacle for it in the ſand or gravel, about the depth of eighteen inches; in this the female depoſits her ſpawn, the male his milt, which they cover carefully, as it is ſaid, with their tails, for after ſpawning they are obſerved to have no ſkin on that part.

The ſpawn lies buried till ſpring, if not diſturbed by violent floods; but the ſalmon haſten to ſea as ſoon as they are able, to purify and cleanſe themſelves, and to recover their ſtrength; for after ſpawning they become very poor and lean, and then are called *Kipper*.

When the ſalmon firſt enter the freſh water, they are

are obſerved to have abundance of inſects adhering to them, eſpecially above the gills: theſe are the *Lernææ Salmoneæ* of *Linnæus*, and are ſigns that the fiſh are in high ſeaſon. Theſe animals die and drop off, ſoon after the ſalmon have left the ſea.

About the latter end of *March* the ſpawn begins to exclude the young, which gradually increaſe to the length of four or five inches, and are then termed *Smelts* or *Smouts*: about the beginning of *May* the river is full of them; it ſeems to be all alive; there is no having an idea of the numbers without ſeeing them; but a ſeaſonable flood then hurries them all to the ſea, ſcare any or very few being left in the river.

About the middle of *June* the earlieſt of the fry begin to drop, as it were, into the river again from the ſea, at that time about twelve, fourteen, or ſixteen inches, and by a gradual progreſs, increaſe in number and ſize till about the end of *July*, which is at *Berwick* termed the height of *Gilſe* time, the name given to the fiſh at that age: the end of *July*, or beginning of *Auguſt* they leſſen in number, but increaſe in ſize, ſome being ſix, ſeven, eight, or nine pounds in weight; this appears to be a ſurpriſing quick growth, yet we have received from a gentleman at *Warrington*, an inſtance ſtill more ſo: a kipper ſalmon weighing 7 lb. three quarters, taken on the 7th of *February*, being marked with a ſciſſars, on the back, fin, and tail, and turned into the river, was again taken

Quick Growth.

taken on the 17th of *March* following, and then was found to weigh 17lb. and a half.

All fiſhermen agree, that they never find any food in the ſtomach of this fiſh. It is likely they may neglect their food entirely during the time of ſpawning, as *ſea lions* and *ſea bears* are known to do for months together during their breeding ſeaſon: and it may be obſerved, that like thoſe animals, the ſalmons return to the ſea lank and lean, and come from the ſalt water in good condition. It is evident that at times their food is both fiſh and worms, for the angler uſes both with good ſucceſs; as well as a large, gaudy, artificial fly, which probably the fiſh miſtakes for a *gay libellula* or dragon fly. FOOD UNCERTAIN.

The capture in the *Tweed*, about the month of *July*, is prodigious; in a good fiſhery, often a boat load, and ſometimes near two, are taken in a tide: ſome few years ago there were above ſeven hundred fiſh taken at one hawl, but from fifty to a hundred is very frequent: the coopers in *Berwick* then begin to ſalt both *Salmon* and *Gilſes* in pipes, and other large veſſels, and afterwards barrel* them to ſend abroad, having then far more than the *London* markets can take off their hands. CAPTURE.

Moſt of the ſalmon taken before *April*, or to the letting in of the warm weather, is ſent freſh to *Lon-*

* The ſalmon barrel holds above forty-two gallons, wine meaſure.

don in baſkets, unleſs now and then the veſſel is diſappointed by contrary winds, of ſailing immediately; in that caſe the fiſh is brought aſhore again to the coopers offices, and boiled, pickled, and kitted, and ſent to the *London* markets by the ſame ſhip, and freſh ſalmon put in the baſkets in lieu of the ſtale ones. At the beginning of the ſeaPRICE. ſon, when a ſhip is on the point of ſailing, a freſh clean ſalmon will ſell from a ſhilling to eighteen pence a pound, and moſt of the time that this part of the trade is carried on, the prices are from five to nine ſhillings per ſtone *, the value riſing and falling according to the plenty of fiſh, or the proſpect of a fair or foul wind. Some fiſh are ſent in this manner to *London* the latter end of *September*, when the weather grows cool, but then the fiſh are full of large roes, grow very thin bellied, and are not eſteemed either palatable or wholeſome.

The price of freſh fiſh in the month of *July*, when they are moſt plentiful, has been known to be as low as 8*d.* per ſtone, but laſt year never leſs than 16*d.* and from that to 2*s.* 6*d.*

SEASON. The ſeaſon for fiſhing in the *Tweed* begins *November* 30th, but the fiſhermen work very little till after *Chriſtmas*; it ends on *Michaelmas-Day*; yet the corporation of *Berwick* (who are conſervators

* A ſtone of ſalmon weighs 18lb. 10 oz. and half, or in other terms, four ſtones, or fifty-ſix pounds avoirdupoiſe, is only three ſtones, or forty-two pounds, fiſh weight at *Berwick*

of the river) indulge the fiſhermen with a fortnight paſt that time, on account of the change of the ſtyle.

There are on the river forty-one conſiderable fiſheries extending upwards, about fourteen miles from the mouth (the others above being of no great value) which are rented for near 5400*l.* per annum. The expence attending the ſervants wages, nets, boats, &c. amount to 5000*l.* more, which together makes up the ſum 10400*l.* Now in conſequence the produce muſt defray all, and no leſs than twenty times that ſum of fiſh will effect it, ſo that 208000 ſalmon muſt be caught there one year with another.

There is a misfortune attending the river *Tweed*, which is worthy a parlementary remedy; for there is no law for preſerving the fiſh in it during the fence months, as there is in the caſe of many other *Britiſh* rivers. This being the boundary between the two kingdoms, part of it belongs to the city of *Berwick*, and the whole north ſide (beginning about two miles from the town) is entirely *Scotch* property. From ſome diſagreement between the parties they will not unite for the preſervation of the fiſh, ſo that in ſome fiſheries on the north ſide they continue killing ſalmon the whole winter, when the death of one fiſh is the deſtruction of thouſands *.

* I think that this grievance is now removed.

The legiſlature began very early to pay attention to this important article: by the 13th *Edward* I. there is an act which prohibits the capture of the ſalmon from the Nativity of our Lady to St. *Martin*'s Day, in the waters of the *Humber*, *Owſe*, *Trent*, *Done*, *Arre*, *Derwent*, *Wharfe*, *Nid*, *Yore*, *Swale*, and *Tees*; and other monarchs in after-times, provided in like manner for the ſecurity of the fiſh in other rivers.

SCOTLAND. *Scotland* poſſeſſes great numbers of fine fiſheries on both ſides of that kingdom. The *Scotch* in early times had moſt ſevere laws againſt the killing of this fiſh; for the third offence was made capital, by a law of *James* IV. Before that, the offender had power to redeem his life *. They were thought in the time of *Henry* VI. a preſent worthy of a crowned head, for in that reign the Queen of *Scotland* ſent to the Dutcheſs of *Clarence*, ten caſks of ſalted ſalmon; which *Henry* directed to paſs duty-free. The ſalmon are cured in the ſame manner as at *Berwick*, and a great quantity is ſent to *London* in the ſpring; but after that time the adventurers begin to barrel and export them to foreign countries: but we believe that commerce is far leſs lucrative than it was in former times, partly owing to the great encreaſe of the *Newfoundland* fiſhery, and partly to the general relaxation of the diſcipline of abſtinence in the *Romiſh* church.

* *Regiam Majeſtatem.* Stat. *Rob.* III. *c.* 7. *Skene*'s Acts. *James* IV. *Parl.* VI.

Ireland

IRELAND.

Ireland (particularly the north) abounds with this fish: the moſt conſiderable fiſhery is at *Cranna*, on the river *Ban*, about a mile and an half from *Coleraine*. When I made the tour of that hoſpitable kingdom in 1754, it was rented by a neighboring gentleman for 620*l.* a year, who aſſured me that the tenant, his predeceſſor, gave 1600*l.* per ann. and was a much greater gainer by the bargain for the reaſons before-mentioned, and on account of the number of poachers who deſtroy the fiſh in the fence months.

The mouth of this river faces the north, and is finely ſituated to receive the fiſh that roam along the coaſt, in ſearch of an inlet into ſome freſh water, as they do all along that end of the kingdom which oppoſes itſelf the northern ocean. We have ſeen near *Ballicaſtle*, nets placed in the ſea at the foot of the promontories that jut into it, which the ſalmon ſtrike into as they are wandering cloſe to ſhore, and numbers are taken by that method.

In the *Ban* they fiſh with nets eighteen ſcore yards long, and are continually drawing night and day the whole ſeaſon, which we think laſts about four months, two ſets of ſixteen men each alternately relieving one another. The beſt drawing is when the tide is coming in: we were told that at a ſingle draught there were once eight hundred and forty fiſh taken.

A few miles higher up the river is a ware, where a conſiderable number of fiſh that eſcape the nets

are taken. We were lately informed, that in the year 1760 about 320 tons were taken in the *Cranna* fiſhery.

The ſalmon are cured in this manner: they are firſt ſplit, and rubbed with fine ſalt; and after lying in pickle in great tubs, or reſervoirs, for ſix weeks, are packed up with layers of coarſe brown *Spaniſh* ſalt in caſks, ſix of which make a ton. Theſe are exported to *Leghorn* and *Venice* at the price of twelve or thirteen pounds per ton, but formerly from ſixteen to twenty-four pounds each.

Descrip. The ſalmon is a fiſh ſo generally known, that a very brief deſcription will ſerve. The largeſt we ever heard of weighed ſeventy four pounds. The color of the back and ſides are grey, ſometimes ſpotted with black, ſometimes plain: the covers of the gills are ſubject to the ſame variety: the belly ſilvery: the noſe ſharp pointed: the end of the under jaw in the males often turns up in form of a hook; ſometimes this curvature is very conſiderable: it is ſaid that they loſe this hook when they return to the ſea.

The teeth are lodged in the jaws and on the tongue, and are ſlender, but very ſharp.

The tail is a little forked.

144. GREY.

The Grey, i. e. cinereous ſeu Griſeus. *Wil. Icth.* 193. *Raii ſyn. piſc.* 63.
Salmo maculis cinereis, caudæ extremo æquali. *Arted. ſynon.* 23.
Salmo eriox. *Lin. ſyſt.* 509.
Gralax. *Faun. Suec.* No. 346.
Lachſs-forellen mit Schwartzgrauen flecken oder punktchens. *Wulff. Boruſs.* No. 43.

WE are uncertain whether this is not a meer variety of the ſalmon; but on the authority of Mr. *Ray*, we deſcribe them ſeparate. He ſays it is a very ſtrong fiſh, that it does not aſcend the freſh waters till *Auguſt*, when it ruſhes up with great violence, that it is rarely taken, and not much known.

The inhabitants of the *North* of *England* and of *South Wales* ſeem extremely well aſſured, that it is a diſtinct ſpecies from the ſalmon. They appear in the *Eſk* in *Cumberland* from *July* to *September*, and are then in ſpawn. The lower jaw grows hooked, when they are out of ſeaſon. I was informed they never exceeded thirteen pounds in weight *.

The head is larger in proportion than that of the ſalmon. In the jaws are four rows of teeth: and on the tongue are eight teeth. The back and ſides, above the lateral line, of a deep grey, ſpotted

* I met with a fiſh (I ſuſpected to be a *Grey*) taken in the ſea near *Conway*. It weighed twenty-two pounds.

with number of purpliſh ſpots. The belly ſilvery. The tail even at the end.

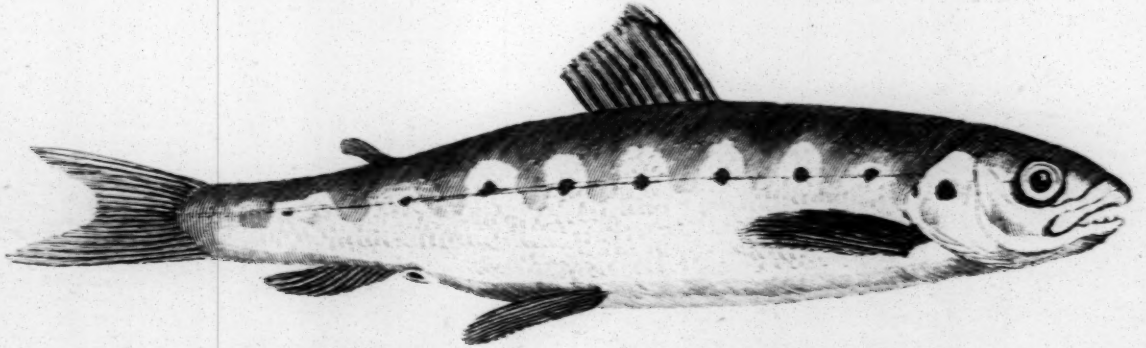
THIS we believe to be the *Sewin*, or *Shewin* of *South Wales*. The deſcription above, was communicated to us by Doctor *Roberts* of *Hereford-ſhire*.

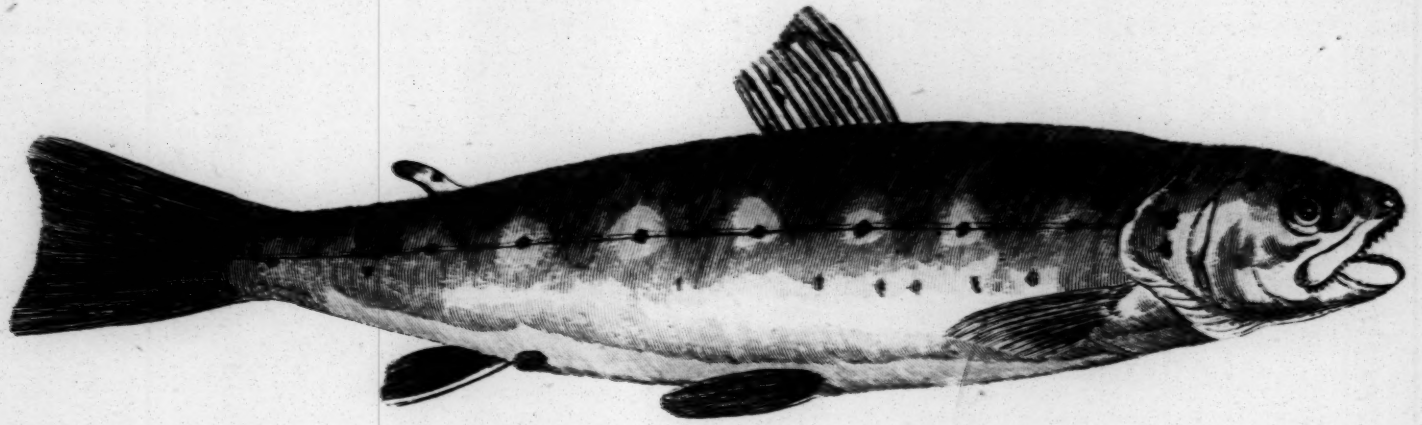
145. Sea. Trutta taurina, apud nos in *Northumbria* a Bull-trout. *Charlton ex. piſc.* 36.
Trutta Salmonata, the Salmon-trout, Bull-trout, or Scurf. *Raii ſyn. piſc.* 63. *Wil. Icth.* 193.
Salmo latus, maculis rubris nigriſque, cauda æquali. *Arted. ſynon.* 24.
Salmo trutta. S. ocellis nigris, iridibus brunneis, pinna pectorali punctis ſex. *Lin. ſyſt.* 509. *Gronov. Zooph.* No. 367.
Orlax, Borting. *Faun. Suec.* No. 347.

THIS ſpecies migrates like the ſalmon up ſeveral of our rivers; ſpawns, and returns to the ſea. That, which I deſcribe, was taken in the *Tweed* below *Berwick*, *June* 1769.

The ſhape was more thick than the common trout. The weight three pounds two ounces. The *irides* ſilvery: the head thick, ſmooth, and duſky, with a gloſs of blue and green: the back of the ſame color, which grows fainter towards the ſide line. The back is plain, but the ſides as far as the lateral line marked with large, diſtinct, irregularly ſhaped ſpots of black: the lateral line ſtrait: the

SAMLET.





Nº 146.

TROUT.

the ſides beneath the line, and the belly are white. Tail broad, and even at the end.

The dorſal fin had twelve rays: the pectoral fourteen: the ventral nine: the anal ten.

The fleſh when boiled is of a pale red, but well flavored.

Mr. *Willughby*'s account of the Salmon, Bull, or Scurf Trout obſcure. Whether the ſame with this?

Salar. *Auſonius Moſel.* 88.
Salar et varius, Trotta. *Salvian.* 96.
La Truitte. *Belon*, 274.
Trutta fluviatilis. *Rondel. fluviat.* 169. *Geſner piſc.* 1002.
Foren, Forellen. *Schonevelde*, 77.
A Trout. *Wil. Ieth.* 199. *Raii ſyn. piſc.* 65.
S. maculis rubris, maxilla inferiore longiore. *Arted. ſynon* 23.
Salmo Fario. *Lin. ſyſt.* 509.
Laxoring, Forell, Stenbit. *Faun. Suec.* No. 348.

146. TROUT.

IT is matter of ſurprize that this common fiſh has eſcaped the notice of all the antients, except *Auſonius*: it is alſo ſingular, that ſo delicate a ſpecies ſhould be neglected at a time when the folly of the table was at its height; and that the epicures ſhould overlook a fiſh that is found in ſuch quantities in the lakes of their neighborhood, when they ranſacked the univerſe for dainties. The milts of *Muræna* were brought from one place; the

the livers of *Scari* from another *; and *Oyſters* even from ſo remote a ſpot as our *Sandwich* †: but there was, and is a faſhion in the article of good living. The *Romans* ſeem to have deſpiſed the trout, the piper, and the doree; and we believe Mr. *Quin* himſelf would have reſigned the rich paps of a pregnant ſow ‡, the heels of camels §, and the tongues of *Flamingos* ||, though dreſſed by *Heliogabalus*'s cooks, for a good jowl of ſalmon with lobſter ſauce.

When *Auſonius* ſpeaks of this fiſh, he makes no euloge on its goodneſs, but celebrates it only for its beauty.

Purpureiſque SALAR *ſtellatus Tergore guttis.*

With purple ſpots the *Salar*'s back is ſtained.

Theſe marks point out the ſpecies he intended: what he meant by his *Fario* is not ſo eaſy to determine: whether any ſpecies of trout, of a ſize between the *ſalar* and the ſalmon; or whether the ſalmon itſelf, at a certain age, is not very evident.

* *Suetonius, vita* Vitellii.

† *Juvenal Sat.* IV. 141.

‡ *Martial, Lib.* XIII. *Epig.* 44.

§ *Lamprid. vit. Heliogab.*

|| *Martial, Lib.* XII. *Epig.* 71.

Teque

Teque inter geminos ſpecies, neutrumque et utrumque,
Qui nec dum SALMO, *nec* SALAR *ambiguuſque.*
Amborum medio FARIO *intercepte ſub ævo.*

Salmon or *ſalar*, I'll pronounce thee neither;
A doubtful kind, that may be none, or either,
Fario, when ſtopt in middle growth.

In fact the colors of the trout, and its ſpots, vary greatly in different waters, and in different ſeaſons; yet each may be reduced to one ſpecies. In *Llyndivi*, a lake in *South Wales*, are trouts called *Coch y dail*, marked with red and black ſpots as big as ſix-pences; others unſpotted, and of a reddiſh hue, that ſometimes weigh near ten pounds, but are bad taſted.

In *Lough Neagh* in *Ireland*, are trouts called there *Buddaghs*, which I was told ſometimes weighed thirty pounds, but it was not my fortune to ſee any during my ſtay in the neighborhood of that vaſt water.

Trouts (probably of the ſame ſpecies) are alſo taken in *Hulſe-water*, a lake in *Cumberland*, of a much ſuperior ſize to thoſe of *Lough Neagh*. Theſe are ſuppoſed to be the ſame with the trout of the lake of *Geneva*, a fiſh I have eaten more than once, and think but a very indifferent one.

CROOKED TROUTS.

In the river *Eynion*, not far from *Machyntleth*, in *Merionethſhire*, and in one of the *Snowdon* lakes, are found a variety of trout, which are naturally deformed, having a ſtrange crookedneſs near the tail,

tail, reſembling that of the perch before deſcribed. We dwell the leſs on theſe monſtrous productions, as our friend the Hon. *Daines Barrington*, has already given an account of them in an ingenious diſſertation on ſome of the *Cambrian* fiſh, publiſhed in the *Philoſophical Tranſactions* of the year 1767.

GILLAROO TROUT*. The ſtomachs of the common trouts are uncommonly thick, and muſcular. They feed on the ſhell-fiſh of lakes and rivers, as well as on ſmall fiſh. They likewiſe take into their ſtomachs gravel, or ſmall ſtones, to aſſiſt in comminuting the teſtaceous parts of their food. The trouts of certain lakes in *Ireland*, ſuch as thoſe of the province of *Galway*, and ſome others, are remarkable for the great thickneſs of their ſtomachs, which, from ſome ſlight reſemblance to the organs of digeſtion in birds, have been called gizzards: the *Iriſh* name the ſpecies that has them, *Gillaroo* trouts. Theſe ſtomachs are ſometimes ſerved up to table, under the former appellation. It does not appear to me, that the extraordinary ſtrength of ſtomach in the *Iriſh* fiſh, ſhould give any ſuſpicion, that it is a diſtinct ſpecies: the nature of the waters might increaſe the thickneſs; or the ſuperior quantity of ſhell-fiſh, which may more frequently call for the uſe of its comminuting powers than thoſe of our trouts, might occaſion this difference. I had opportunity of comparing the ſtomach of a great

NAME.

* *Philoſoph. Tranſact.* Vol. LXIV. p. 116. 310.

Gillaroo

Gillaroo trout, with a large one from the *Uxbridge* river. The laſt, if I recollect, was ſmaller, and out of ſeaſon; and its ſtomach (notwithſtanding it was very thick) was much inferior in ſtrength to that of the former: but on the whole, there was not the leſt ſpecific difference between the two ſubjects.

Trouts are moſt voracious fiſh, and afford excellent diverſion to the angler: the paſſion for the ſport of angling is ſo great in the neighborhood of *London*, that the liberty of fiſhing in ſome of the ſtreams in the adjacent counties, is purchaſed at the rate of ten pounds per annum.

Theſe fiſh ſhift their quarters to ſpawn, and, like ſalmon, make up towards the heads of rivers to depoſit their roes. The under jaw of the trout is ſubject, at certain times, to the ſame curvature as that of the ſalmon.

DESCRIP. A trout taken in *Llynallet*, in *Denbighſhire*, which is famous for an excellent kind, meaſured ſeventeen inches, its depth three and three quarters, its weight one pound ten ounces: the head thick; the noſe rather ſharp: the upper jaw a little longer than the lower; both jaws, as well as the head, were of a pale brown, blotched with black: the teeth ſharp and ſtrong, diſpoſed in the jaws, roof of the mouth and tongue, as is the caſe with the whole genus, except the *Gwyniad*, which is toothleſs, and the *Grayling*, which has none on its tongue.

The

The back was duſky; the ſides tinged with a purpliſh bloom, marked with deep purple ſpots, mixed with black, above and below the ſide line which was ſtrait: the belly white.

The firſt dorſal fin was ſpotted; the ſpurious fin brown, tipped with red; the pectoral, ventral, and anal fins, of a pale brown; the edges of the anal fin white: the tail very little forked when extended.

147. WHITE. THIS ſpecies migrates out of the ſea into the river *Eſk* in *Cumberland* from *July* to *September*, and is called from its color the *Whiting*. When dreſſed, their fleſh is red, and moſt delicious eating. They have, on their firſt appearance from the ſalt water, the *lernæa ſalmonea*, or ſalmon louſe adhering to them. They have both melt and ſpawn; but no fry has as yet been obſerved. This is the fiſh called by the *Scots*, *Phinocs*.

They never exceed a foot in length. The upper jaw is a little longer than the lower: in the firſt are two rows of teeth; in the laſt, one: on the tongue are ſix teeth.

The back is ſtrait: the whole body of an elegant form: the lateral line is ſtrait; color, between that and the top of the back, duſky and ſilvery intermixed; beneath the line of an exqui-

ſite

ſite ſilvery whiteneſs: firſt dorſal fin ſpotted with black: tail black, and much forked.

The firſt dorſal fin has eleven rays; pectoral, thirteen; ventral, nine; anal, nine.

Le Tacon? *Belon*, 275.
Salmulus, *Herefordiæ* Samlet dictus. *Wil. Icth.* 192.
Salmulus, the Samlet *Herefordienſibus*, Branlin et Fingerin *Eboracenſibus*. *Raii ſyn. piſc.* 63.
Salmoneta, a Branlin. *Ray's Letters*, 199.

148. SAMLET.

THE ſamlet is the leſt of the trout kind, is frequent in the *Wye*, in the upper part of the *Severn*, and the rivers that run into it, in the north of *England*, and in *Wales*. It is by ſeveral imagined to be the fry of the ſalmon; but our reaſons for diſſenting from that opinion are theſe:

Firſt, It is well known that the ſalmon fry never continue in freſh water the whole year; but as numerous as they appear on their firſt eſcape from the ſpawn, all vaniſh on the firſt vernal flood that happens, which ſweeps them into the ſea, and leaves ſcarce one behind.

Secondly, The growth of the ſalmon fry is ſo quick and ſo conſiderable, as ſuddenly to exceed the bulk of the largeſt ſamlet: for example, the fry that have quitted the freſh water in the ſpring, not larger than gudgeons, return into it again a foot or more in length.

Thirdly,

Thirdly, The ſalmon attain a conſiderable bulk before they begin to breed: the ſamlets, on the contrary, are found male and female*, (diſtinguiſhed by the milt and roe) of their common ſize.

Fourthly, They are found in the freſh waters in all times of the year, and even at ſeaſons when the ſalmon fry have gained a conſiderable ſize. It is well known, that near *Shrewſbury* (where the are called *Samſons*) they are found in ſuch quantities in the month of *September*, that a ſkilful angler, in a coracle, will take with a fly from twelve to ſixteen dozen in a day.

They ſpawn in *November* and *December*, at which time thoſe of the *Severn* puſh up towards the head of that fair river, quitting the leſſer brooks, and return into them again when they have done.

They have a general reſemblance to the trout, therefore muſt be deſcribed comparatively.

Firſt, The head is proportionably narrower, and the mouth leſs than that of the trout.

Secondly, Their body is deeper.

Thirdly, They ſeldom exceed ſix or ſeven inches in length: at moſt, eight and a half.

Fourthly, The pectoral fins have generally but one large black ſpot, though ſometimes a ſingle ſmall one attends it; whereas the pectoral fins of the trout are more numerouſly marked.

Fifthly, The ſpurious or fat fin on the back is

* It has been vulgarly imagined, that there were no other than males of this ſpecies.

never

G. Wilkinson del

Mazell Sculp

never tipped with red; nor is the edge of the anal fin white.

Sixthly, The ſpots on the body are fewer, and not ſo bright.

It is alſo marked from the back to the ſides with ſix or ſeven large bluiſh bars; but this is not a certain character, as the ſame is ſometimes found in young trouts.

Seventhly, The tail of the ſamlet is much more forked than that of the trout.

Theſe fiſh are very frequent in the rivers of *Scotland*, where they are called *Pars*. They are alſo common in the *Wye*, where they are known by the name of *Skirlings*, or *Laſprings*.

L'Omble, ou Humble. *Belon*, 281.
Umbla ſeu Humble *Belonii Geſner piſc.* 1005.
Umbla minor. *Geſner piſc.* 1013.
Torgoch *Wallis*. *Weſtmorlandis* Red Charre *Lacus Winander mere*. *Wil. Icth.* 196. *Raii ſyn. piſc.* 65.
Salmo vix pedalis, pinnis ventralibus rubris, maxilla inferiore longiore. *Arted. ſyn.* 25.
Salmo alpinus. *Lin. ſyſt.* 510. *Gronov. Zooph. No.* 372.
Roding, *Lapponibus* Raud. *Faun. Suec. No.* 124.
Charr-fiſh. *Phil. Tranſ.* 1755. 210.

149. CHARR.

THE charr is an inhabitant of the lakes of the north, and of thoſe of the mountanous parts of *Europe*. It affects clear and pure waters, and is very rarely known to wander into running

ſtreams, except into ſuch whoſe bottom is ſimilar to the neighboring lake.

It is found in vaſt abundance in the cold lakes on the ſummits of the *Lapland Alps*, and is almoſt the only fiſh that is met with in any plenty in thoſe regions; where it would be wonderful how they ſubſiſted, had not Providence ſupplied them with innumerable *larvæ* of the *Gnat* kind*: theſe are food to the fiſh, who in their turn are a ſupport to the migratory *Laplanders* in their ſummer voyages to the diſtant lakes.

In ſuch excurſions thoſe vacant people find a luxurious and ready repaſt in theſe fiſh, which they dreſs and eat without the addition† of ſauces; for exerciſe and temperance render uſeleſs the inventions of epicuriſm.

* A pupil of *Linnæus* remarks in the fourth volume of the *Amæn. Acad. p.* 156, that the ſame inſects which are ſuch a peſt to the rein deer, afford ſuſtenance to the fiſh of the vaſt lakes and rivers of *Lapland*. But at the ſame time that we wonder at *Linnæus*'s inattention to the food of the birds and fiſh of that country, which abound even to a noxious degree, we muſt, in juſtice to that Gentleman, acknowledge an overſight of our own in the ſecond volume of the *Britiſh Zoology*, *p.* 522, edition the ſecond, where we give the *Lapland* waters only one ſpecies of water plant; for on a more careful review of that elaborate performance, the *Flora Lapponica*, we diſcover three other ſpecies, viz. *Scirpus*, *No.* 18, *Alopecurus*, *No.* 38, *Ranunculus*, *No.* 234; but thoſe ſo thinly ſcattered over the *Lapland* lakes, as ſtill to vindicate our aſſertion, as to the ſcarceneſs of plants in the waters of alpine countries.

† *Arted. Sp. piſc.* 52.

There

There are but few lakes in our iſland that produce this fiſh, and even thoſe not in any abundance. It is found in *Winander Mere* in *Weſtmorland*; in *Llyn Quellyn*, near the foot of *Snowdon*; and before the diſcovery of the copper-mines, in thoſe of *Llynberris*, but the mineral ſtreams have entirely deſtroyed the fiſh in the laſt lakes *. Whether the waters in *Ireland* afford the charr, we are uncertain, but imagine not, except it has been overlooked by their writers on the natural hiſtory of that kingdom. In *Scotland* it is found in *Loch Inch*, and other neighboring lakes, and is ſaid to go into the *Spey* to ſpawn.

The largeſt and moſt beautiful we ever received were taken in *Winander Mere*, and were communicated to us by the Rev. Mr. *Farriſh* of *Carliſle*, with an account of their natural hiſtory. He favored me with five ſpecimens, two under the name of the *Caſe Charr*, male and female; another he called the *Gelt Charr*, i. e. a charr which had not ſpawned the preceding ſeaſon, and on that account is reckoned to be in the greateſt perfection. The two others were inſcribed, the *Red Charr*, the *Silver or Gilt Charr*, the *Carpio Lacus* Benaci, *Raii ſyn. piſc.* 66, which laſt are in *Weſtmorland* diſtinguiſhed by the epithet *red*, by reaſon of the fleſh aſſuming a higher color than the other when dreſſed.

* They are alſo found in certain lakes in *Merionethſhire*.

VARIETIES. On the cloſeſt examination, we could not diſcover any ſpecific differences in theſe ſpecimens, therefore muſt deſcribe them as the ſame fiſh, ſubject only to a ſlight variation in their form, hereafter to be noted. But there is in another reſpect an eſſential difference, we mean in their œconomy, which is in all beings invariable; the particulars we ſhall deliver in the very words of our obliging informant.

SPAWNING OF THE CASE CHARR. The *Umbla minor*, or caſe charr, ſpawns about *Michaelmas*, and chiefly in the river *Brathy*, which uniting with another called the *Rowthay*, about a quarter of a mile above the lake, they both fall into it together. The *Brathy* has a black rocky bottom; the bottom of the *Rowthay* is a bright ſand, and into this the charr are never obſerved to enter. Some of them however ſpawn in the lake, but always in ſuch parts of it which are ſtony, and reſemble the channel of the *Brathy*. They are ſuppoſed to be in the higheſt perfection about *May*, and continue ſo all the ſummer, yet are rarely caught after *April*. When they are ſpawning in the river they will take a bait, but at no other time, being commonly taken, as well as the other ſpecies, in what they call *breaſt nets*, which are in length about twenty-four fathoms, and about five, where broadeſt.

GILT CHARR. The ſeaſon which the other ſpecies ſpawns in is from the beginning of *January* to the end of *March*. They are never known to aſcend the rivers,

rivers, but always in thoſe parts of the lake which are ſpringy, where the bottom is ſmooth and ſandy, and the water warmeſt. The fiſhermen judge of this warmth, by obſerving that the water ſeldom freezes in the places where they ſpawn, except in intenſe froſts, and then the ice is thinner than in other parts of the lake. They are taken in greateſt plenty from the end of *September* to the end of *November*: at other times they are hardly to be met with. This ſpecies is much more eſteemed for the table than the other, and is very delicate when potted.

We muſt obſerve, that this account of the ſpawning ſeaſon of the *Weſtmorland* charrs, agrees very nearly with that of thoſe of *Wales*, the laſt appearing about a month later, keep moving from ſide to ſide of the pool, and then retire into the deep water, where they are ſometimes but rarely taken.

This remarkable circumſtance of the different ſeaſon of ſpawning in fiſh, apparently the ſame (for the red charr of *Winander*, is certainly not the *Carpio Lacus* Benaci) puzzles us greatly, and makes us wiſh that the curious, who border on that lake, would pay farther attention to the natural hiſtory of theſe fiſh, and favor us with ſome further lights on the ſubject.

We ſhall now deſcribe the varieties by the names aſcribed to them in the north.

The length of the red charr to the diviſion in its tail, was twelve inches; its biggeſt circumference Red Charr.

almoſt ſeven. The firſt dorſal fin five inches and three quarters from the tip of its noſe, and conſiſted of twelve branched rays: the firſt of which was ſhort, the fifth the longeſt: the fat fin was very ſmall.

Each of the five fiſh had double noſtrils, and ſmall teeth in the jaws, roof of the mouth, and on the tongue.

The head, back, dorſal fin, and tail of each, was of a duſky blue; the ſides rather paler, marked with numbers of bright red ſpots: the bellies of the *Red Charr* were of a full and rich red; thoſe of the *Caſe Charr* rather paler; from this particular the *Welch* call theſe fiſh *Torgoch*, or red belly.

The firſt rays of the anal and ventral fins of each, were of a pure white; the reſt of each fin on the lower part of the body, tinged with red.

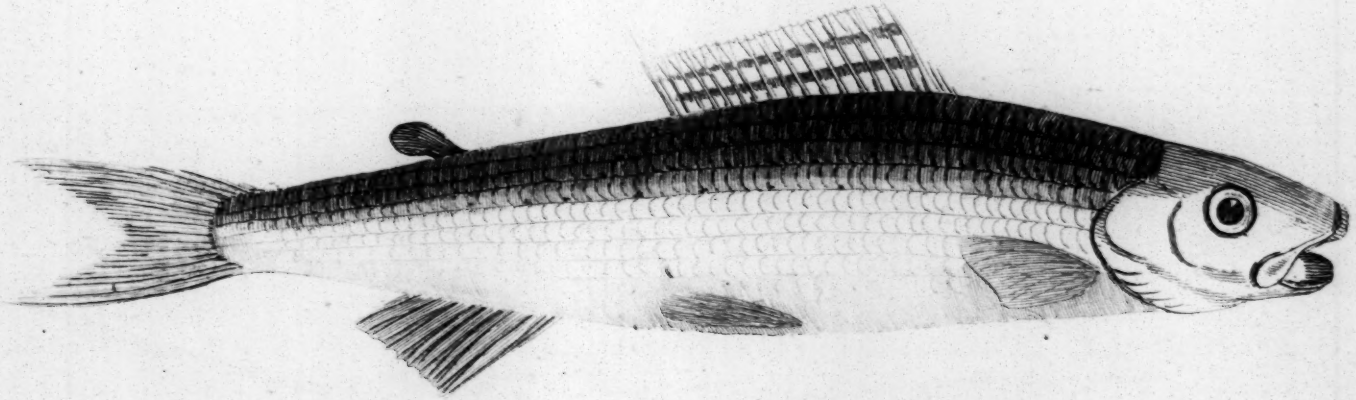
The lateral line ſtrait, dividing the fiſh in two equal parts, or nearly ſo.

The jaws of the *Caſe Charr* are perfectly even; on the contrary, thoſe the *Red Charr* were unequal, the upper jaw being the broadeſt, and the teeth hung over the lower, as might be perceived on paſſing the finger over them.

The branchioſtegous rays were, on different ſides of the ſame fiſh, unequal in number, viz. 12,--11, 11,--10, 10--9, except in one, where they were 11,--11.

GELT CHARR. The *Gelt*, or *Barren Charr*, was rather more ſlender

GRAYLING.



SMELT.

Nº 151.



ſlender than the others, as being without ſpawn. The back of a gloſſy duſky blue: the ſides ſilvery, mixed with blue, ſpotted with pale red: the ſides of the belly were of a pale red, the bottom white.

The tails of each bifurcated.

The charrs we have ſeen, brought from *Snowdon* lakes, were rather ſmaller than thoſe of *Weſtmorland*, their colors paler. The ſuppoſed males very much reſemble the *Gelt Charr*; but that is not a certain diſtinction of ſex, for the Rev. Mr. *Farrington* *, has told me that the fiſhermen do not make that diſtinction.

Θυμαλλος *Ælian. de an. lib.* xiv. *c.* 22.
Umbra *Auſonii Moſella.* 90.
Thymalus, Thymus. *Salvian.* 81. *Belon*, 276.
Thymus, Umbra fluviatilis. *Rondel. fluv.* 187, 172. *Geſner piſc.* 132.
A Grayling, or Umber. *Wil. Icth.* 187. *Raii ſyn. piſc.* 62. Coregonus maxilla ſuperiore longiore, pinna dorſi officulorum viginti trium. *Arted. ſynon.* 20.
Salmo Thymallus. *Lin. ſyſt.* 512. *Gronov. Zooph. No.* 375. Aſch. *Kram.* 390.

150. GRAYLING.

THE grayling haunts clear and rapid ſtreams, and particularly ſuch that flow through mountanous countries. It is found in the rivers of *Derbyſhire*; in ſome of thoſe of the north; in

* Who favored the Royal Society with a paper on the *Welch* charr. *Vide Phil. Tranſ.* 1755.

the *Tame* near *Ludlow*; in the *Lug*, and other ſtreams near *Leominſter*; and in the river near *Chriſtchurch*, *Hampſhire*. It is alſo very common in *Lapland*; the inhabitants make uſe of the guts of this fiſh inſtead of rennet, to make the cheeſe which they get from the milk of the rein deer*.

It is a voracious fiſh, riſes freely to the fly, and will very eagerly take a bait. It is a very ſwift ſwimmer, and diſappears like the tranſient paſſage of a ſhadow, from whence we believe is derived the name of *Umbra*.

Effugienſque oculos celeri levis Umbra *natatu* †.
The *Umbra* ſwift eſcapes the quickeſt eye.

Thymalus and *Thymus*, are names beſtowed on it on account of the imaginary ſcent, compared by ſome to that of thyme; but we never could perceive any particular ſmell.

Descrip. It is a fiſh of an elegant form; leſs deep than that of a trout: the largeſt we ever heard of was taken near *Ludlow*, which was above half a yard long, and weighed four pounds ſix ounces, but this was a very rare inſtance.

The irides are ſilvery, tinged with yellow; the teeth very minute, ſeated in the jaws and the roof of the mouth, but none on the tongue: the head is duſky: the covers of the gills of a gloſſy green:

* *Flora Lap.* 109, *Amæn Acad.* IV. 159.
† Auſonii Moſel. 90.

the

the back and ſides of a fine ſilvery grey, but when the fiſh is juſt taken, varied ſlightly with blue and gold: the ſide-line is ſtrait.

The ſcales large, and the lower edges duſky, forming ſtrait rows from head to tail.

The firſt dorſal fin has twenty-one rays; the three or four firſt are the ſhorteſt, the others almoſt of equal lengths; this fin is ſpotted, all the others are plain.

The tail is much forked.

151. SMELT.

Epelan de mer. *Belon*, 282.
Eperlanus. *Rondel. fluviat.* 196. *Geſner piſc.* 362.
Spirincus et Stincus. *Geſner Paralip.* 29.
A Spyrling a Sprote. *Turner epiſt. ad. Geſn.*
Stindt, et Stinckfiſch. *Schonevelde*, 70.
A Smelt. *Wil. Icth.* 202.
Raii ſyn. piſc. 66.
Oſmerus radiis pinnæ ani ſeptendecim. *Arted. ſynon.* 21.
Salmo eperlanus. S. capite diaphano, radiis pinnæ ani ſeptendecim. *Lin. ſyſt.* 511. *Gronov. Zooph. No.*
Nors, Slom. *Faun. ſuec. No.* 350.

THE ſmelt inhabits the ſeas of the northern parts of *Europe*, and we believe never is found as far ſouth as the *Mediterranean*: the *Seine* is one of the *French* rivers which receive it, but whether it is found ſouth of that, we have not at preſent authority to ſay. If we can depend on the obſervations of navigators, who generally have too much to think of to attend to the *minutiæ* of natural hiſtory, theſe fiſh are taken in the ſtraits of *Magellan*,

*Magellan**, and of a moſt ſurpriſing ſize, ſome meaſuring twenty inches in length, and eight in circumference.

They inhabit the ſeas that waſh theſe iſlands the whole year, and never go very remote from ſhore, except when they aſcend the rivers. It is remarked in certain rivers that they appear a long time before they ſpawn, being taken in great abundance in *November*, *December*, and *January*, in the *Thames* and *Dee*, but in others not till *February*, and in *March* and *April* they ſpawn; after which† they all return to the ſalt water, and are not ſeen in the rivers till the next ſeaſon. It has been obſerved, that they never come into the *Merſey* as long as there is any ſnow water in the river.

Theſe fiſh vary greatly in ſize, but the largeſt we ever heard of was thirteen inches long, and weighed half a pound.

They have a very particular ſcent, from whence is derived one of their *Engliſh* names *Smelt*, i. e. ſmell it. That of *Sparling*, which is uſed in *Wales* and the north of *England*, is taken from the *French Eperlan*. There is a wonderful diſagreement in the opinion of people in reſpect to the ſcent of this fiſh; ſome aſſert it flavors of the violet; the *Ger-*

* *Narborough's Voy.* 123.

† In the river *Conway*, near *Llanrwſt*, and in the *Merſey* they never continue above three or four weeks.

mans

mans, for a very different reaſon, diſtinguiſh it by the elegant title of *Stinckfiſch* *.

Smelts are often ſold in the ſtreets of *London* ſplit and dried. They are called dried *Sparlings*, and are recommended as a reliſh to a glaſs of wine in the morning.

It is a fiſh of a very beautiful form and colour: the head is tranſparent, and the ſkin in general ſo thin, that with a good microſcope the blood may be obſerved to circulate.

The irides are ſilvery: the pupil of a full black: the under jaw is the longeſt: in the front of the upper jaw are four large teeth; thoſe in the ſides of both are ſmall; in the roof of the mouth are two rows of teeth; on the tongue two others of large teeth. Descrip.

The firſt dorſal fin has eleven rays; the pectoral fins the ſame number; the ventral eight; the anal fourteen.

The ſcales are ſmall, and readily drop off: the tail conſiſts of nineteen rays, and is forked.

The color of the back is whitiſh, with a caſt of green, beneath which it is varied with blue, and then ſucceeds a beautiful gloſs of a ſilvery hue.

* And not without reaſon, if we may depend on *Linnæus*, who ſays there are in the *Baltic* two varieties, the one, which is called *Nors*, *fœtidiſſimus*, *ſtercoris inſtar*, which in the early ſpring, when the peaſants come to buy it, fills all the ſtreets of *Upſal* with the ſmell. He adds, that at this ſeaſon agues reign there. *Faun. ſuec. p.* 125.

Without

** Without Teeth.

152. GWINIAD.

Le Lavaret. *Belon*, 278.
Lavaretus; Piſcis *Lemani* lacus *Bezola* vulgo nuncupatus. Alius Piſcis proprius *Lemani* lacus. *Rondel. fluviat.* 162, 163, 164. *Geſner piſc.* 29, 30, 31.
Albula nobilis, Snepel, Helte? *Schonevelde*, 12.
Vandeſius et Gevandeſius. *Sib. Scot.* 26.
Guiniad *Wallis* piſcis lacus *Balenſis*, *Ferræ* (ut puto) idem. *Wil. Icth.* 183. *Raii ſyn. piſc.* 61.
Lavaretus *Allobrogum*, Schelley *Cumberlandis*. *Wil. Icth.* 183. *Raii ſyn. piſc.* 61.
Albula cærulea. *Scheuchzer it. Alp.* II. 481.
Coregonus maxilla ſuperiore longiore plana, pinna dorſi officulorum 14. *Arted. ſynon.* 19.
Salmo Lavaretus. *Lin. ſyſt.* 512.
Sijk, Stor-ſijk. *Faun. Suec. No.* 352.
Gwiniad. *Phil. Tranſ.* 1767. 211.
Adelfiſch, Gangfiſch, Weiſsfiſch, Weiſſer Blauling, Schnapel. *Wulff Boruſs.* 37.
Reinankl. *Kram.* 389.

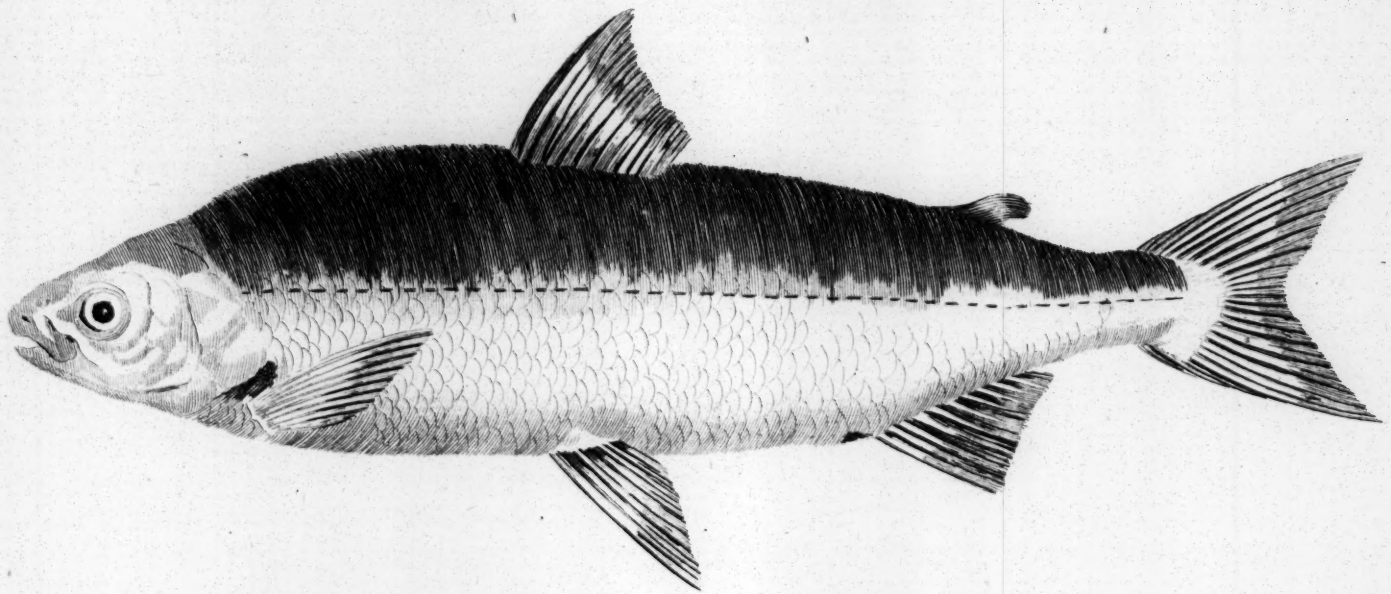
THIS fiſh is an inhabitant of ſeveral of the lakes of the *Alpine* parts of *Europe*. It is found in thoſe of *Switzerland*, *Savoy*, and *Italy*; of *Norway*, *Sueden*, *Lapland**, and *Scotland*; in

* *Schæffer*, in his hiſtory of *Lapland*, p. 140. ſays, that theſe fiſh are caught there of the weight of ten or twelve pounds. We wiſh *Linnæus* had executed his intention of favoring the world with his *Lacheſis Lapponica*, in which he promiſed a complete hiſtory of that country. I once reminded him of it, and it is with true regret, that I give his anſwer:

Nunc nimis ſeró inciperem,
Me quoque debilitat ſeries immenſa laborum,
Ante meum tempus cogor et eſſe ſenem:
Firma ſit illa licet ſolvetur in æquore navis,
Quæ nunquam liquidis ſicca carebit aquis.

thoſe

GWINIAD.



P. Mazell Sculp

thoſe of *Ireland*, and of *Cumberland*; and in *Wales*, in that of *Llyntegid*, near *Bala*, in *Merionethſhire*.

It is the ſame with the *Ferra* of the lake of *Geneva*, the *Schelly* *, of *Hulſe-water*, the *Pollen* of *Lough Neagh*, and the *Vangis* and *Juvangis* of *Loch Mabon*. The *Scotch* have a tradition that it was firſt introduced there by the beauteous queen, their unhappy *Mary Stuart*; and as in her time the *Scotch* court was much frenchified, it ſeems likely that the name was derived from the *French*, *vendoiſe*, a dace; to which a ſlight obſerver might be tempted to compare it from the whiteneſs of its ſcales. The *Britiſh* name *Gwiniad*, or whiting, was beſtowed on it for the ſame reaſon.

It is a gregarious fiſh, and approaches the ſhores in vaſt ſhoals in ſpring and in ſummer, which prove in many places a bleſſed relief to the poor of inland countries, in the ſame degree as the annual return of the herring is to thoſe who inhabit the coaſts. The Rev. Mr. *Farriſh*, of *Carliſle*, wrote me word, that he was aſſured by a *Hulſe-water* fiſherman, that laſt ſummer he took between ſeven and eight thouſand at one draught. I muſt not paſs by that gentleman without acknowledging my obligations to him for an account of the *Charrs* and the *Schelly*; he being one of the valuable embelliſhers of this work, for whom I am indebted to the friendſhip of his late worthy prelate.

* The inhabitants of *Cumberland* give this name alſo to the chub, from its being a ſcaly fiſh.

The

The *Gwiniad* is a fiſh of an inſipid taſte, and muſt be eaten ſoon, for it will not keep long; thoſe that chooſe to preſerve them do it with ſalt. They die very ſoon after they are taken. Their ſpawning ſeaſon in *Llyntegid* is in *December*.

It has long ago been obſerved in *Cambden* *, that theſe fiſh never wander into the *Dee*, nor the ſalmon never ventures into the lake: this muſt be allowed to be generally the caſe; but by accident the firſt have been known to ſtray as far as *Llandrillo*, ſix miles down the river, and a ſalmon has now and then been found treſpaſſing in the lake †.

The largeſt *Gwiniad* we ever heard of weighed between three and four pounds: we have a *Ferra* we brought with us out of *Switzerland*, that is fifteen inches long; but theſe are uncommon ſizes: the fiſh which we deſcribe was eleven inches long, its greateſt depth three.

The head ſmall, ſmooth, and of a duſky hue: the eyes very large: the pupil of a deep blue: the noſe blunt at the end: the jaws of equal length: the mouth ſmall and toothleſs: the branchioſtegous rays nine: the covers of the gills ſilvery, powdered with black.

The back is a little arched, and ſlightly carinated: the color, as far as the lateral line, gloſſed with deep blue and purple, but towards the lines aſſumes

* *Vol.* II. 790.

† *Hon.* D. Barrington's *Letter to Dr.* Watſon. Phil. Tranſ. 1767.

a ſilvery

a ſilvery caſt, tinged with gold, beneath which thoſe colors entirely prevale.

The ſide line is quite ſtrait, and conſiſts of a ſeries of diſtinct ſpots of a duſky hue: the belly is a little prominent, and quite flat on the bottom.

The firſt dorſal fin is placed almoſt in the middle, and conſiſts of fourteen branched rays; the ſecond is thin, tranſparent, and not diſtant from the tail.

The pectoral fins had eighteen rays, the firſt the longeſt, the others gradually ſhortening; the ventral fins were compoſed of twelve, and the anal of fifteen, all branched at their ends; the ventral fins in ſome are of a fine ſky blue, in others as if powdered with blue ſpecks; the ends of the other lower fins are tinged with the ſame color.

The tail is very much forked: the ſcales large, and adhere cloſe to the body.

XXXIV. PIKE.

Upper jaw ſhorter than the lower.
Body long, ſlender, compreſſed ſideways.
One dorſal fin placed near the tail.

153. PIKE.

Lucius. *Auſonii Moſella*, 122.
Luccio. *Salvian.* 94.
Le Brochet. *Belon*, 292. *Itin.* 104.
Lucius. *Rondel. fluviat.* 188. *Geſner piſc.* 500.
Heket, Hecht. *Schonevelde*, 44.
Pike, or Pickerel. *Wil. Ich.* 236. *Raii ſyn. piſc.* 112.
Eſox roſtro plagioplateo. *Art. ſynon.* 26.
Eſox Lucius. *Lin. ſyſt.* 516. *Gronov. Zooph. No.* 361.
Gjadda. *Faun. Suec. No.* 355.
Hecht. *Kram.* 388.

THE pike is common in moſt of the lakes of *Europe*, but the largeſt are thoſe taken in *Lapland*, which, according to *Schæffer*, are ſometimes eight feet long. They are taken there in great abundance, dried, and exported for ſale. The largeſt fiſh of this kind which we ever heard of in *England*, weighed thirty-five pounds.

According to the common ſaying, theſe fiſh were introduced into *England* in the reign of *Henry* VIII. in 1537. They were ſo rare, that a pike was ſold for double the price of a houſe-lamb in *February*, and a pickerel for more than a fat capon. How far this may be depended on, I cannot ſay, for this fiſh is mentioned in the *Boke* of *St. Albons*, printed in the year 1496, and is not there ſpoke of as a ſcarce fiſh, as was then the caſe with reſpect to the carp. Great numbers of this fiſh were dreſſed in the year 1466, at the great feaſt given by *George Nevil*, Archbiſhop of *York*.

All writers who treat of this ſpecies bring inſtances of its vaſt voraciouſneſs. We have known one that was choaked by attempting to ſwallow one

PIKE.

SEA PIKE.

Nº 154.

one of its own ſpecies that proved too large a morſel. Yet its jaws are very looſely connected; and have on each ſide an additional bone like the jaw of a viper, which renders them capable of greater diſtenſion when it ſwallows its prey. It does not confine itſelf to feed on fiſh and frogs; it will devour the water rat, and draw down the young ducks as they are ſwimming about. In a manuſcript note which we found, p. 244, of our copy of *Plott*'s Hiſtory of *Staffordſhire*, is the following extraordinary fact: "At Lord *Gower*'s canal at "*Trentham*, a pike ſeized the head of a ſwan as "ſhe was feeding under water, and gorged ſo "much of it as killed them both. The ſervants "perceiving the ſwan with its head under water "for a longer time than uſual, took the boat, "and found both ſwan and pike dead*."

But there are inſtances of its fierceneſs ſtill more ſurprizing, and which indeed border a little on the marvellous. *Geſner*† relates, that a famiſhed pike in the *Rhone* ſeized on the lips of a mule that was brought to water, and that the beaſt drew the fiſh out before it could diſengage itſelf. That people have been bit by theſe voracious creatures while they were waſhing their legs, and that they will

* This note we afterwards diſcovered was wrote by Mr. *Plott*, of *Oxford*, who aſſured me he inſerted it on good authority.

† *Geſner piſc.* 503.

even contend with the otter for its prey, and endeavour to force it out of its mouth *.

Small fiſh ſhew the ſame uneaſineſs and deteſtation at the preſence of this tyrant, as the little birds do at the ſight of the hawk or owl. When the pike lies dormant near the ſurface (as is frequently the caſe) the leſſer fiſh are often obſerved to ſwim around it in vaſt numbers, and in great anxiety. Pike are often haltered in a nooſe, and taken while they lie thus aſleep, as they are often found in the ditches near the *Thames* in the month of *May*.

In the ſhallow water of the *Lincolnſhire* fens they are frequently taken in a manner peculiar, we believe, to that county, and the iſle of *Ceylon* †. The fiſhermen make uſe of what is called a crown-net, which is no more than a hemiſpherical baſket, open at top and bottom. He ſtands at the end of one of the little fenboats, and frequently puts his baſket down to the bottom of the water, then poking a ſtick into it, diſcovers whether he has any booty by the ſtriking of the fiſh; and vaſt numbers of pike are taken in this manner.

LONGEVITY. The longevity of this fiſh is very remarkable, if we may credit the accounts given of it. *Rzaczynſki* ‡ tells us of one that was ninety years old;

* *Walton*. 157.

† *Knox's Hiſt. Ceylon*, 28.

‡ *Hiſt. Nat. Poloniæ*, 152.

but

but *Geſner* * relates, that in the year 1497, a pike was taken near *Hailbrun*, in *Suabia*, with a brazen ring affixed to it, on which were theſe words in *Greek* characters: *I am the fiſh which was firſt of all put into this lake by the hands of the governor of the univerſe*, FREDERICK *the Second, the 5th of* October, 1230: ſo that the former muſt have been an infant to this *Methuſalem* of a fiſh.

Pikes ſpawn in *March* or *April*, according to the coldneſs or warmth of the weather. When they are in high ſeaſon their colors are very fine, being green, ſpotted with bright yellow; and the gills are of a moſt vivid and full red. When out of ſeaſon, the green changes to grey, and the yellow ſpots turn pale.

The head is very flat; the upper jaw broad, and is ſhorter than the lower: the under jaw turns up a little at the end, and is marked with minute punctures. DESCRIP.

The teeth are very ſharp, diſpoſed only in the front of the upper jaw, but in both ſides of the lower, in the roof of the mouth, and often the tongue. The ſlit of the mouth, or the gape, is very wide; the eyes ſmall.

The dorſal fin is placed very low on the back, and conſiſts of twenty-one rays; the pectoral of fifteen; the ventral of eleven; the anal of eighteen.

The tail is bifurcated.

* *Icones piſcium*, 316, where a print of the ring is given.

154. GAR. Βελόνη. *Ariſt. Hiſt. an.* II. *c.* 15. &c.
Βελόνη, Ραφις? *Athenæus lib.* VII. 319.
Acus, ſive Belone *Plinii lib.* IX. *c.* 51.
Acuchia. *Salvian*, 68.
L'Aguille, ou Orphie. *Belon*, 161.
Acus prima ſpecies. *Rondel.* 227. *Geſner piſc.* 9.
Horn-fiſck. *Schonevelde*, 11.
Horn-fiſh, or Gar-fiſh. *Wil. Icth.* 231. *Raii ſyn. piſc.* 109.
Eſox roſtro cuſpidato gracili ſubtereti, et ſpithamali. *Arted. ſynon.* 27.
Eſox Belone. E. roſtro utraque maxilla dentata. *Lin. ſyſt.* 517. *Gronov. Zooph. No.* 362.
Nabbgjadda, Horngiall. *Faun. Suec. No.* 156.
See-naadel, Sack-nadel. *Wulff Boruſs. No.* 70.

THIS fiſh which is found in many places, is known by the name of the *Sea Needle.* It comes in ſhoals on our coaſts in the beginning of ſummer, and precedes the mackrel: it has a reſemblance to it in taſte, but the light green, which ſtains the back bone of this fiſh when boiled, gives many people a diſguſt to it.

DESCRIP. The common ſea pike, or ſea needle, ſometimes grows to the length of three feet, or more.

The jaws are very long, ſlender, and ſharp pointed; the under extends much farther than the upper, and the edges of both are armed with numbers of ſhort ſlender teeth: the inſide of the mouth is purple: the tongue ſmall: the eyes large: the irides ſilvery: the noſtrils wide and round.

The body is ſlender: the belly quite flat, bounded on both ſides by a rough line.

The

PL. LXIV.

SAURY.

N°. 155.

M. Griffiths print.r

P. Mazell sculp.

The pectoral fins conſiſt of fourteen rays; the ventral fin ſmall, and placed very remote from the head, conſiſts of ſeven rays, the firſt ſpiny.

The dorſal fin lies on the very loweſt part of the back, conſiſts of ſixteen rays; the firſt are high, the others lower as they approach the tail; the anal fin is of the ſame form, and placed oppoſite to the other; and has twenty-one rays. The tail is much forked.

The colors are extremely beautiful when the fiſh is in the water: the back of a fine green, beneath that appears a rich changeable blue and purple: the ſides and belly are of a fine ſilvery hue.

Saurus, *Rondel. piſc.* 232. *Syn. piſc.* 169. 155. SAURY.
Skipper, *Cornubienſium. Raii* The Saury. *Tour Scotland* 1769.

THE length is eleven inches: the noſe ſlender: the jaws produced like thoſe of the ſea needle, but of equal length. The upper mandible a little incurvated. Their length one inch.

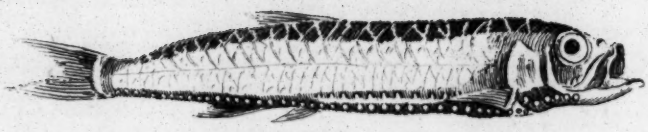
The eyes large; the body anguilliform: but towards the tail grows ſuddenly ſmaller, and tapers to a very inconſiderable girth. On the lower part of the back is a ſmall fin, and between it and the tail ſix ſpurious like thoſe of the mackrel. Correſpondent to theſe, below are the anal fin and ſix ſpurious. The pectoral and ventral fins very ſmall:

the tail much forked. The back duſky: the belly bright and ſilvery.

Great numbers of theſe fiſh were thrown aſhore on the ſands of *Leith*, near *Edinburgh*, after a great ſtorm in *November* 1768. *Rondeletius* deſcribes this ſpecies among the fiſh of the *Mediterranean*; but ſpeaks of it as a rare kind.

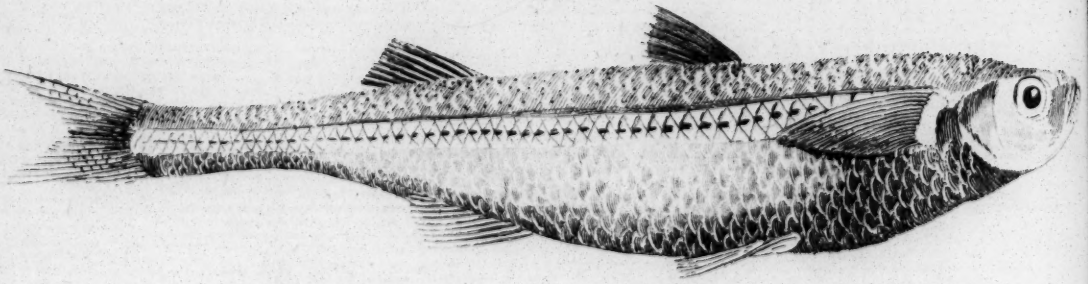
Teeth

ARGENTINE



ATHERINE

Nº 157.



XXXV. ARGENTINE.

Teeth in the jaws and tongue.
Eight branchioſtegous rays.
Vent near the tail.
The ventral fins compoſed of many rays.

Sphyræna parva, ſive ſphyrænæ ſecunda ſpecies. *Rondel.* 227. *Geſner piſc.* 883?
Piſciculus *Romæ*, Argentina dictus. *Wil. Icth.* 229. *Raii ſyn. piſc.* 108?
Argentina. *Arted. ſynon.* 17.
Argentina *Sphyræna. Lin. ſyſt.* 518. *Gronov. Zooph. No.* 349?

156. SHEPPY.

A LITTLE fiſh, which I believe to be of this ſpecies, was brought to me in 1769, taken in the ſea near *Downing*.

The length was two inches one-fourth: the eyes large; and irides ſilvery. The lower jaw ſloped much: the teeth ſmall.

The body compreſſed, and of an equal depth almoſt to the anal fin. The tail forked.

The back was of a duſky green: the ſides and covers of the gills as if plated with ſilver. The lateral line was in the middle and quite ſtrait.

On each ſide of the belly was a row of circular punctures: above them another, which ceaſed near the vent.

Mr. *Willughby* ſays, that the outſide of the air bladder of this fiſh conſiſts of a foliaceous ſilvery ſkin, which was made uſe of in the manufacture of artificial pearl.

XXXVI. ATHERINE.

The upper jaw a little flat.
Six branchioſtegous rays.
A ſilvery ſtripe along the ſide.

157. ATHERINE.

Epſetus? *Belon*, 209.
Ἐψητος, Atherina. *Rondel.* 215, 216. *Boſſuet Epig.* 66, 67. *Geſner piſc.* 71, 72.
Piſciculus *Anguella Venetiis* dictus; forte Hepſetus *Rondeletii*, vel *Atherina* ejuſdem. *Wil. Icth.* 209. *Raii ſyn. piſc.* 79.
Atherina. *Arted. ſynon. App.* 116.
Atherina Hepſetus. A. pinna ani radiis fere duodecim. *Lin. ſyſt.* 519. *Gronov. Zooph. No.* 399.

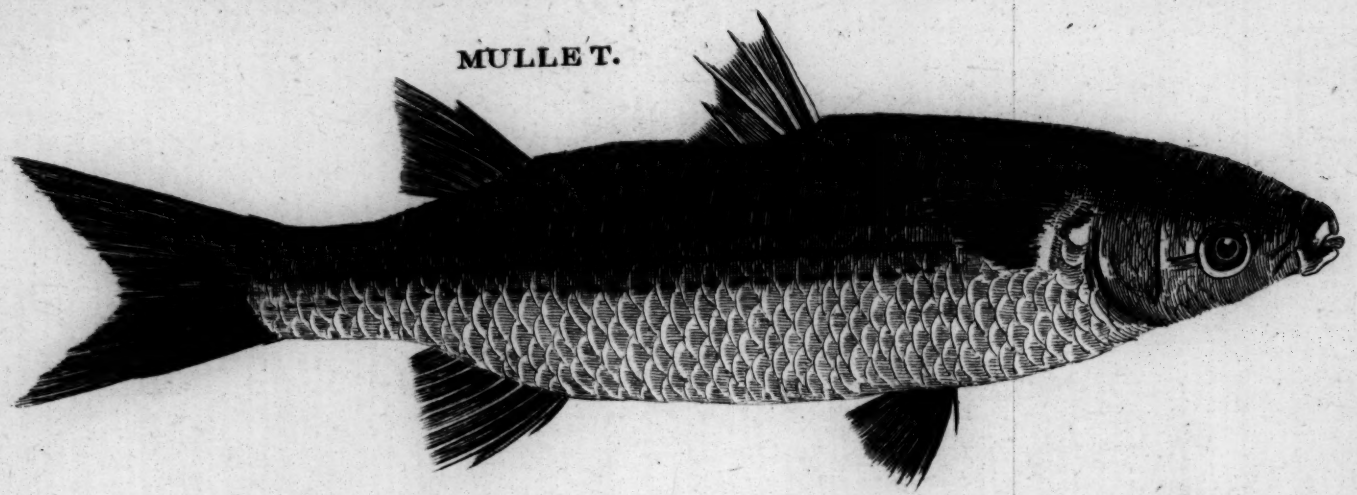
THIS ſpecies is very common in the ſea near *Southampton*, where it is called a *Smelt*. The higheſt ſeaſon is from *March* to the latter end of *May*, or beginning of *June*; in which month it ſpawns. It never deſerts the place; and is conſtantly taken except in hard froſt. It is alſo found on other coaſts of our iſland.

The length is above four inches one-fourth. The back ſtrait: the belly a little protuberant. On the back are two fins. I neglected to count the rays. The tail is much forked.

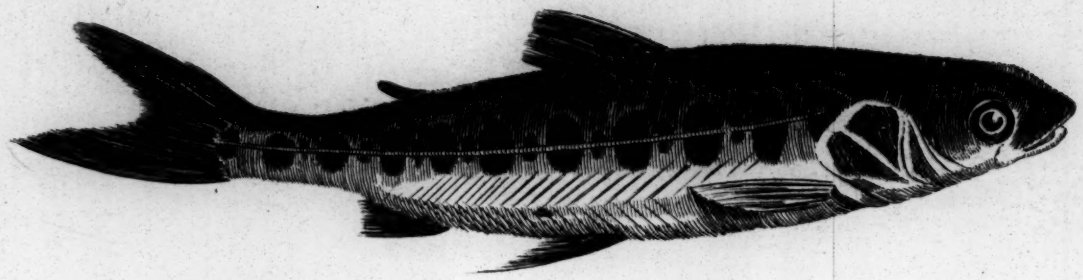
The fiſh is ſemipellucid, covered with ſcales: the color ſilvery, tinged with yellow: the ſide line ſtrait: beneath it is a row of ſmall black ſpots.

Body

MULLET.



PARR.



R. Griffiths del

"The Jacing, Colcher, mullet, Jarron Beale or Jarron trout,
are synonimous Fallons."

Le Caerbian register Vol. 2. p. 125.

Body and covers of the gills clothed with large scales. XXXVII. MULLET.

Six incurvated branchioſtegous rays.

Teeth on the tongue and in the palate only.

Κεφαλος, Κεϛρέυς. *Ariſt. Hiſt. an. lib.* V. *c.* 11, &c.

Κεϛρέυς. *Oppian Halieut.* III. 98. *Athenæus lib.* VII. 306.

Mugil *Ovid Halieut.* 37. *Plinii lib.* IX. *c.* 8. 17.

Cephalo. *Salvian*, 75.

Le Mulet. *Belon*, 205.

Cephalus. *Rondel.* 260. *Geſner piſc.* 549.

Mullet. *Wil. Icth.* 274. *Raii ſyn. piſc.* 84.

Mugil. *Arted. ſynon.* 52.

Mugil cephalus. M. pinna dorſali anteriore quinque radiate. *Lin. ſyſt.* 520. *Gronov. Zooph. No.* 397. 158. MULLET.

THE mullet is juſtly ranked by *Ariſtotle* among the *Piſces Littorales*, or thoſe that prefer the ſhores to the full ſea: they are found in great plenty on ſeveral of the ſandy coaſts of our iſland, and haunt in particular thoſe ſmall bays that have influxes of freſh water. They come in great ſhoals, and keep rooting like hogs in the land or mud, leaving their traces in form of large round holes. They are very cunning, and when ſurrounded with a net, the whole ſhoal frequently eſcapes by leaping over it, for when one takes the lead, the others are ſure to follow: this circumſtance is taken notice of by *Oppian*; whether the latter part of his obſervation is true, is what we are uncertain.

Κεϛρευς

Κεϛρευς μεν πλεκτῆσιν ἐν ἀγκοίνησι λίνοιο,
Ελκόμενος δόλον ἄτι περιδρομον ἠγνοίησεν.
Υ̓ψι δ᾽ ἀναθρώσκει λελιημένος ὕδατος ἄκρου,
Ορθὸς ἄνω σπεύδων ὅσσον σθένος ἅλματι κύφῳ
Ορμῆσαι βελῆς δὲ σαόφρονος ἐκ ἐμάτησε.
Πολλάκι γὰρ ῥιπῆσι καὶ ὕϛατα πείσματα φελλῶν
Ρηϊδίως ὑπερᾶλτο, καὶ ἐξήλυξε μόροιο.
Εἰ δ᾽ ὅγ᾽ ἀνορμηθεὶς πρῶτον ϛόλον, αὖτις ὀλισθῆ
Ες βρόχον, ἐκ ἔτ᾽ ἔπειτα βιάζεται, ἐδ᾽ ἀνορύει,
Αχνύμενος· πείρη δὲ μαθὼν ἀποπαύεται ὁρμῆς.

The *Mullet**, when encircling ſeines incloſe,
The fatal threads and treach'rous boſom knows.
Inſtant he rallies all his vig'rous powers,
And faithful aid of every nerve implores;
O'er battlements of cork up-darted flies,
And finds from air th' eſcape that ſea denies.
But ſhould the firſt attempt his hopes deceive,
And fatal ſpace th' impriſon'd fall receive,
Exhauſted ſtrength no ſecond leap ſupplies;
Self-doom'd to death the proſtrate victim lies,
Reſign'd with painful expectation waits,
'Till thinner elements compleat his fates. JONES.

Oppian had good opportunity of examining theſe fiſh, for they ſwarm during ſome ſeaſons on the coaſts of the *Mediterranean*. Near *Martegues*, in the ſouth of *France*, abundance of mullets are taken in weres made of reeds placed in the ſhallows. Of the milts of the males, which are there called

* Mr. *Jones*, by miſtake, tranſlates it the *Barbel*.

Alletants,

Alletants, and of the roes of the females, which are called *Botar*, is made *Botargo*. The materials are taken out entire, covered with ſalt for four or five hours, then preſſed a little between two boards or ſtones, waſhed, and at laſt dried in the ſun for thirteen or fourteen days *.

This fiſh was ſometimes made the inſtrument of a horrible puniſhment for unfortunate gallants. It was in uſe both at *Athens* † and at *Rome*; but we doubt much whether it was a legal one: for we rather ſuſpect it was inflicted inſtantaneouſly by the injured and enraged huſband, at a ſeaſon when

Furor arma miniſtrat.

Juvenal ſeems to ſpeak of it in that light as well as *Horace:* the former, relating the revenge taken by the exaſperated ſpouſe, deſcribes it as very various;

Necat hic ferro, ſecat ille cruentis
Verberibus, quoſdam mæchos et MUGILIS *intrat* ‡.

The paſſage in *Horace* ſeems not to have been attended to by the critics; but when he mentions

* Mr. *Willughby*'s notes during his travels. *Vide Harris's Col. Voy.* II. 721.

† *Legibus* Athenienſium *adulteri* εν ἔργῳ *deprehenſi pœna fuit* ῥαφανόδωσις. *Raphani loco utebantur nonnunquam mugile piſce, interdum ſcorpione.* Cauſauboni *animadvers. in* Athenæum, *lib.* I.

‡ *Satyr.* X. 316

the

the diſtreſſes that the invader of another's bed underwent, he moſt certainly alludes to this penalty:

Diſcinctâ tunicâ fugiendum eſt, ac pede nudo;
Ne nummi pereant, aut PYGA, *aut denique fama* *.

The mullet is an excellent fiſh for the table, but at preſent not a faſhionable one.

The head is almoſt ſquare, and is flat on the top: the noſe blunt: lips thick. It has no teeth, only in the upper lip is a ſmall roughneſs: between the eyes and the mouth is a hard callus.

The pupil of the eye is black, encircled with a ſmall ſilvery line: the upper part of the iris is hazel; the lower ſilvery.

The form of the body is pretty thick, but the back not greatly elevated. The ſcales are large and deciduous.

The firſt dorſal fin is placed near the middle of the back, and conſiſts of four ſtrong ſpines; the ſecond of nine ſoft branching rays; the pectoral has ſixteen, the ventral ſix; the firſt a ſtrong ſpine, the others ſoft.

The tail is much forked.

The color of the back is duſky, varied with blue and green: the ſides ſilvery, marked with broad duſky parallel lines, reaching from head to tail: the belly is ſilvery.

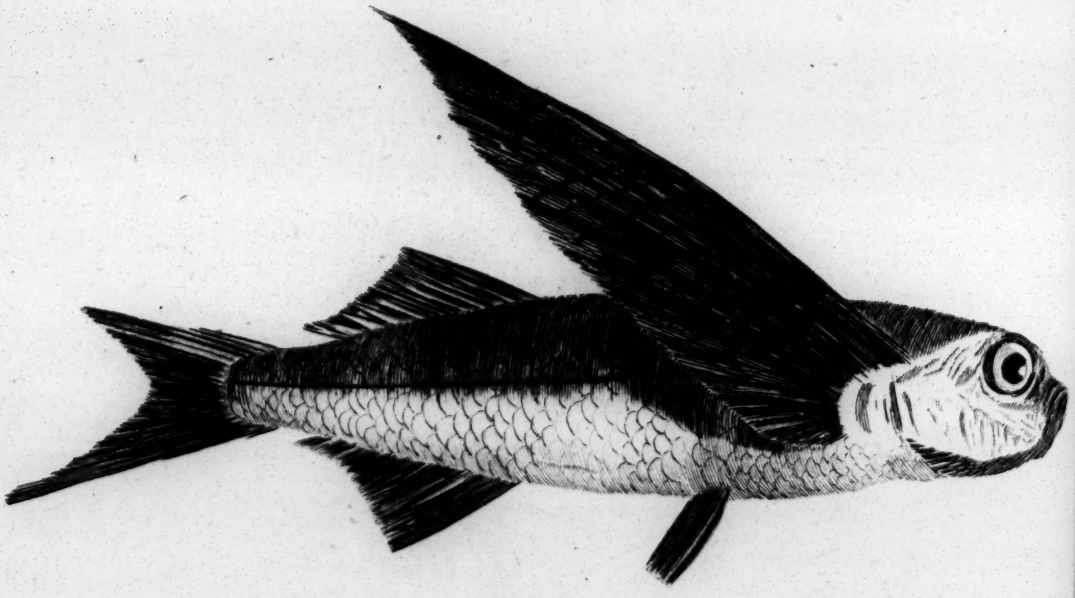
* *Satyr.* II. *lib.* I. 132.

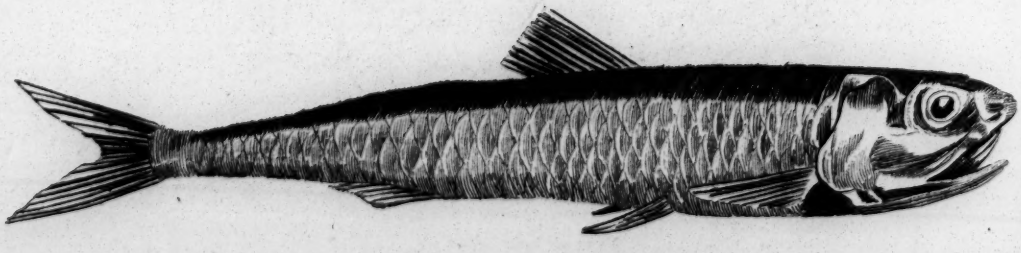
Head



FLYING FISH.

Nº 159.





ANCHOVY.

Nº 163.

Head covered with ſcales.
Pectoral fins almoſt as long as the body.

XXXVIII. FLYING FISH.

Hirundo *Plinii lib.* IX. *c.* 26.
*Ἐξοκοιτος και Ἀδωνις? *Athenæus lib.* VIII. 332. *Oppian Halieut.* I. 157.
χελιδων? *Oppian* II. 459.
Rondine. *Salvian*, 186.
Hirondelle de mer. *Belon*, 189.
Mugil alatus. *Rondel.* 267. *Geſner piſc.* 553. *Wil. Icth.* 233.
Exocætus. *Arted. ſynon.* 18.
Exocætus volitans. E. abdomine utrinque carinato. *Lin. ſyſt.* 520. *Amæn. Acad.* I. 603. *Gronov. Zooph. No.* 359.

159. WINGED.

WE can produce but a ſingle inſtance of this ſpecies† being taken on the *Britiſh* coaſts. In *June* 1765, one was caught at a ſmall diſtance below *Caermarthen*, in the river *Towy*, being brought up by the tide which flows as far as the town. It is a fiſh frequent enough in the *Mediterranean*, and alſo in the ocean, where it leads a moſt miſerable life. In its own element it is perpetually haraſſed by the *Dorados*, and other fiſh of prey. If it endeavors to avoid them by having recourſe to the air, it either meets its fate from the

* *Pliny* mentions it under the ſame name, *lib.* IX. *c.* 19.
† This fiſh was ſeen by *John Strange*, Eſq; at *Caermarthen*, who was ſo obliging as to communicate to me the account of

Gulls,

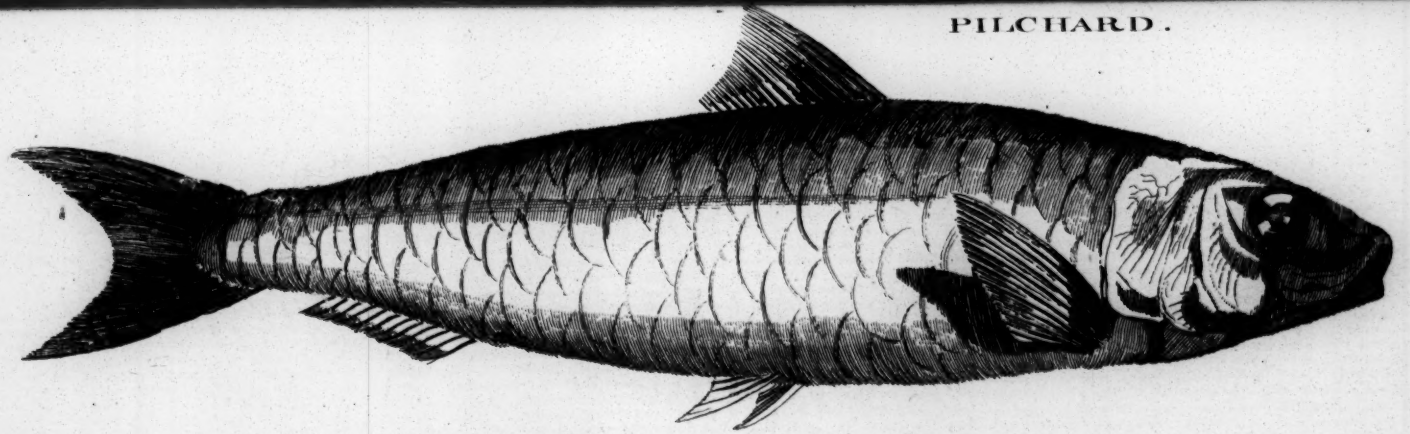
Gulls, or the *Albatroſs*, or is forced down again into the mouth of the inhabitants of water, who below keep pace with its aerial excurſion. Neither is it unfrequent that whole ſhoals of them fall on board of ſhips that navigate the ſeas of warm climates: it is therefore apparent, that nature in this creature hath ſupplied it with inſtruments that frequently bring it into that deſtruction it ſtrives to avoid, by having recourſe to an element unnatural to it.

The antients were acquainted with this ſpecies: *Pliny* mentions it under the name of *Hirundo*, and ſpeaks of its flying faculty. It is probable that *Oppian* intended the ſame by his Ωκειαι χελιδονες, or the *ſwift ſwallow* fiſh. What *Athenæus* and the laſt cited author mean by the Εξοκοιτος and Αδων, is not ſo evident: they aſſert it quitted the water and ſlept on the rocks, from whence it tumbled with precipitation when diſturbed by the unfriendly birds: on theſe accounts Icthyologiſts ſeem to have made it ſynonymous with the *flying fiſh*.

DESCRIP. It reſembles the herring in form of the body, but the back is flat: the ſcales large and ſilvery: the dorſal fin is ſmall, and placed near the tail: the pectoral fins, the inſtruments of flight, are almoſt as long as the body: the tail is bifurcated.

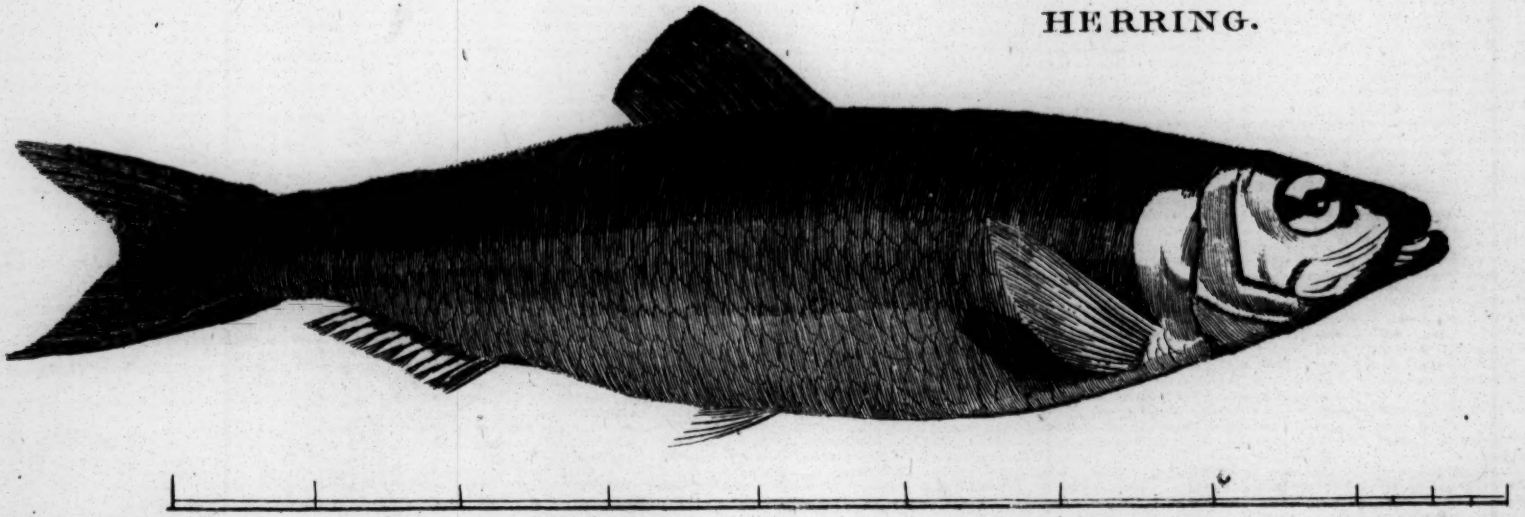
Eight

PILCHARD.



HERRING.

No 160.



G Wilkinson del

P Mazell Sculp

Eight branchioſtegous rays.
The belly extremely ſharp, and often ſerrated.

XXXIX. HERRING,

Aringha ex *cimbricis* littoribus. *Jovius*, 143.
Hareng, eſpece de Chalcis. *Belon*, 169.
Harengus. *Rondel.* 222. *Geſner piſc.* 410.
Heringk. *Schonevelde*, 37.
Herring. *Wil. Icth.* 219. *Raii ſyn. piſc.* 103.
Clupea maxilla inferiore longiore maculis carens. *Arted. ſynon.* 14. α. β.
Clupea Harengus. Cl. immaculata, maxilla inferiore longiore. *Lin. ſyſt.* 522. *Gronov. Zooph. No.* 348.
Sill. *Faun. Suec. No.* 357. α.
Stromming. *Faun. Suec. No.* 357. β.
Stromling *. *Wulff. Boruſs. No.* 50.

160. BRITISH

THE herring was unknown to the antients, notwithſtanding the words χαλκις and μαινις, are by tranſlators rendered *Halec* †, the characters given of thoſe fiſh are common to ſuch numbers of different ſpecies, as render it impoſſible to ſay which they intended.

NAME.

Herrings are found from the higheſt northern latitudes yet known, as low as the northern coaſts of *France*; and excepting one inſtance brought by

PLACE.

* The herring of the *Baltic*, in all reſpects is like ours, but ſmaller.

† Which word, in ſpite of all *lexicographers*, never ſignified any thing but the *garum* or pickle. *Vide p.* 221.

Dod,

Dod *, of a few being once taken in the Bay of *Tangier*, are never found more ſoutherly.

They are met with in vaſt ſhoals on the coaſt of *America*, as low as *Carolina*. In *Cheſapeak* Bay is an annual inundation of thoſe fiſh, which cover the ſhores in ſuch quantities as to become a nuſance †. We find them again in the ſeas of *Kamtzchatka*, and poſſibly they reach *Japan*; for *Kæmpfer* mentions, in his account of the fiſh of that country, ſome that are congenerous.

The great winter rendezvous of the herring is within the *Arctic* circle: there they continue for many months in order to recruit themſelves after the fatigue of ſpawning, the ſeas within that ſpace ſwarming with inſect food, in a degree far greater than in our warmer latitudes.

Migrations

This mighty army begins to put itſelf in motion in the ſpring; we diſtinguiſh this vaſt body by that name, for the word herring is derived from the *German*, *Heer*, an army, to expreſs their numbers.

They begin to appear off the *Shetland* iſles in *April* and *May*; theſe are only forerunners of the grand ſhoal which comes in *June*, and their appearance is marked by certain ſigns by the numbers of birds, ſuch as gannets, and others which follow to prey on them: but when the main body approaches, its breadth and its depth is ſuch as to

* *Natural Hiſt. of the Herring*, p. 27.

† *Cateſby Carol.* II. XXXIII.

alter

alter the appearance of the very ocean. It is divided into diſtinct columns of five or ſix miles in length, and three or four in breadth, and they drive the water before them with a kind of rippling: ſometimes they ſink for the ſpace of ten or fifteen minutes, then riſe again to the ſurface, and in bright weather reflect a variety of ſplendid colors, like a field of the moſt precious gems, in which, or rather in a much more valuable light, ſhould this ſtupendous gift of Providence be conſidered by the inhabitants of the *Britiſh* iſles.

Separation.

The firſt check this army meets in its march ſouthward, is from the *Shetland* iſles, which divide it into two parts; one wing takes to the eaſt, the other to the weſtern ſhores of *Great Britain*, and fill every bay and creek with their numbers; others paſs on towards *Yarmouth*, the great and antient mart of herrings; they then paſs through the *Britiſh* channel, and after that in a manner diſappear. Thoſe which take to the weſt, after offering themſelves to the *Hebrides*, where the great ſtationary fiſhery is, proceed towards the north of *Ireland*, where they meet with a ſecond interruption, and are obliged to make a ſecond diviſion; the one takes to the weſtern ſide, and is ſcarce perceived, being ſoon loſt in the immenſity of the *Atlantic*; but the other, which paſſes into the *Iriſh* ſea, rejoices and feeds the inhabitants of moſt of the coaſts that border on it.

Theſe brigades, as we may call them, which are

thus ſeparated from the greater columns, are often capricious in their motions, and do not ſhew an invariable attachment to their haunts. We have had in our time inſtances of their entirely quitting the coaſts of *Cardiganſhire*, and viſiting thoſe of *Caernarvonſhire* and *Flintſhire*, where they continued for a few years, but in the preſent year have quite deſerted our ſea, and returned to their old ſeats. The ſeaſon of their appearance among us was very late, never before the latter end of *November*; their continuance till *February*.

Providential inſtinct.

Were we inclined to conſider this partial migration of the herring in a moral light, we might reflect with veneration and awe on the mighty Power which originally impreſſed on this moſt uſeful body of his creatures, the inſtinct that directs and points out the courſe, that bleſſes and enriches theſe iſlands, which cauſes them at certain and invariable times to quit the vaſt polar deeps, and offer themſelves to our expecting fleets. That benevolent Being has never, from the earlieſt records, been once known to withdraw this bleſſing from the whole, though he often thinks proper to deny it to particulars; yet this partial failure (for which we ſee no natural reaſon) ſhould fill us with the moſt exalted and grateful ſenſe of his Providence, for impreſſing ſo invariable and general inſtinct on theſe fiſh towards a ſouthward migration, when the whole is to be benefited, and to withdraw it only when a minute part is to ſuffer.

This inſtinct was given them, that they might remove for the ſake of depoſiting their ſpawn in warmer ſeas, that would mature and vivify it more aſſuredly than thoſe of the frigid zone. It is not from defect of food that they ſet themſelves in motion, for they come to us full of fat, and on their return are almoſt univerſally obſerved to be lean and miſerable. What their food is near the pole, we are not yet informed; but in our ſeas they feed much on the *Oniſcus Marinus*, a cruſtaceous inſect, and ſometimes on their own fry. The herring will riſe to a fly. Mr. *Low* of *Birſa* in the *Orknies* aſſures me, that he has caught many thouſands with a common trout fly, in a deep hole in a rivulet, into which the tide flows. He commonly went at the fall of the tide. They were young fiſh, from ſix to eight inches in length.

SPAWNING.

FOOD.

They are in full roe the end of *June*, and continue in perfection till the beginning of winter, when they begin to depoſit their ſpawn. The young herrings begin to approach the ſhores in *July* and *Auguſt*, and are then from half an inch to two inches long: thoſe in *Yorkſhire* are called *Herring Sile**. Though we have no particular authority for it, yet as very few young herrings are found in our ſeas during winter, it ſeems moſt certain that they muſt return to their parental haunts beneath

RETURN.

* The *Suedes* and *Danes* call the old herring *Sill*; but the people of *Sleſwick*, from whence the *Anglo-Saxons* came, call the fry *Sylen*.

the ice, to repair the vaſt deſtruction of their race during ſummer, by men, fowl, and fiſh. Some of the old herrings continue on our coaſts the whole year: the *Scarborough* fiſhermen never put down their nets but they catch a few; but the numbers that remain are not worth mention in compariſon to the numbers that return.

DESCRIP. Herrings vary greatly in ſize. Mr. *Travis* communicated to me the information of an experienced fiſher, who informed him that there is ſometimes taken near *Yarmouth*, a herring diſtinguiſhed by a black ſpot above the noſe; and that he once ſaw one that was twenty-one inches and an half long. He inſiſted that it was a different ſpecies, and varied as much from the common herring as that does from the pilchard. This we mention in order to incite ſome curious perſon on that coaſt to a farther enquiry.

The eye is very large: the edges of the upper jaw and the tongue are very rough, but the whole mouth is void of teeth: the gill covers are very looſe, and open very wide; which occaſions the almoſt inſtant death of the herring when taken out of the water, which is well known, even to a proverb.

The dorſal fin conſiſts of about ſeventeen rays, and is placed beyond the centre of gravity, ſo that when the fiſh is ſuſpended by it, the head immediately dips down: the two ventral fins have nine rays;

rays; the pectoral ſeventeen; the anal fourteen: the tail is much forked.

The lateral line is not apparent, unleſs the ſcales are taken off: the ſides are compreſſed: the belly ſharply carinated, but the ridge quite ſmooth, and not in the leſt ſerrated.

The ſcales are large, thin, and fall off with a ſlight touch.

The color of the back and ſides green, varied with blue: the belly ſilvery. COLOR.

The herring fiſhery is of great antiquity: the induſtrious *Dutch* firſt engaged in it about the year 1164: they were in poſſeſſion of it for ſeveral centuries, but at length its value became ſo juſtly to be known, that it gave riſe to moſt obſtinate and well-diſputed wars between the *Engliſh* and them; but ſtill their diligence and ſkill gives them a ſuperiority over us in that branch of trade. FISHERY.

Our great ſtations are off the *Shetland* and *Weſtern Iſles*, and off the coaſt of *Norfolk*, in which the *Dutch* alſo ſhare. *Yarmouth* has long been famous for its herring fair *; that town is obliged, by its charter, to ſend to the ſheriffs of *Norwich* one hundred herrings, to be made into twenty-four pies, by them to be delivered to the lord of the manor of *Eaſt Carleton*, who is to convey them to the

* This fair was regulated by an act, commonly called the *Statute of Herrings*, in the 31ſt year of *Edward* III.

king *. The facetious Doctor *Fuller* † takes notice of the great repute the county of *Norfolk* was in for this fiſh, and, with his uſual archneſs, calls a red herring, a *Norfolk Capon*.

In 1195, *Dunwich* in *Suffolk* accounted to the king for their yearly fee farm rent, £120, 1 mark, and 24000 herrings, 12000 for the monks of *Eye*, and 12000 for thoſe of *Ely*.

The *Dutch* are moſt extravagantly fond of this fiſh when it is pickled. A premium is given to the firſt buſs that arrives in *Holland* with a lading of this their *ambroſia*, and a vaſt price given for each keg. We have been in the country at that happy minute, and obſerved as much joy among the inhabitants on its arrival, as the *Ægyptians* ſhew on the firſt overflowing of the *Nile*. *Flanders* had the honor of inventing the art of pickling herrings. One *William Beukelen*, of *Biervlet*, near *Sluys*, hit on this uſeful expedient: from him was derived the name *pickle*, which we borrow from the *Dutch* and *German*. *Beukelen* died in 1397. The emperor *Charles* V. held his memory in ſuch veneration for the ſervice he did mankind, as to do his tomb the honor of a viſit. It is very ſingular that moſt nations give the name of their favorite diſh to the facetious attendant on every mountebank. Thus the *Dutch* call him PICKLE

* *Cambden Britan.* I. 458.

† *Britiſh Worthies*, 238.

HERRING;

Pilchard welded in D. "guided Mouth bay"

147

HERRING; the *Italians*, MACARONI; the *French*, JEAN POTTAGE; the *Germans*, HANS WURST*; and we dignify him with the title of JACK PUDDING.

Pilchard. *Fuller's Brit. Worthies*, 194.
Peltzer. *Schonevelde*, 40.
The Pilchard. *Wil. Icth.* 223. *Raii syn. piſc.* 104.
Clupea δ. *Arted. synon.* 16.
Pilchard. *Borlaſe Cornwall*, 272. 161. PILCHARD.

THE pilchard appears in vaſt ſhoals off the *Corniſh* coaſts about the middle of *July*, diſappearing the beginning of winter, yet ſometimes a few return again after *Chriſtmas*. Their winter retreat is the ſame with that of the herring, and their motives for migrating the ſame. They affect, during ſummer, a warmer latitude, for they are not found in any quantities on any of our coaſts except thoſe of *Cornwall*, that is to ſay, from *Fowey* harbor to the *Scilly* iſles, between which places the ſhoals keep ſhifting for ſome weeks.

The approach of the pilchard is known by much the ſame ſigns as thoſe that indicate the arrival of the herring. Perſons, called in *Cornwall Huers*, are placed on the cliffs, to point to the boats ſtationed off the land the courſe of the fiſh. By the 1ſt of *James* I. c. 23, fiſhermen are empowered to

* That is, *Jack Sauſage*.

go on the grounds of others to *hue*, without being liable to actions of treſpaſs, which before occaſioned frequent lawſuits.

The emoluments that accrue to the inhabitants of that county are great, and are beſt expreſſed in the words of Doctor *W. Borlaſe*, in his account of the *Pilchard* fiſhery.

" It employs a great number of men on the ſea, " training them thereby to naval affairs; employs " men, women, and children, at land, in ſalting, " preſſing, waſhing, and cleaning, in making " boats, nets, ropes, caſks, and all the trades de- " pending on their conſtruction and ſale. The " poor is fed with the offals of the captures, the " land with the refuſe of the fiſh and ſalt, the mer- " chant finds the gains of commiſſion and honeſt " commerce, the fiſherman the gains of the fiſh. " Ships are often freighted hither with ſalt, and " into foreign countries with the fiſh, carrying off " at the ſame time part of our tin. The uſual pro- " duce of the number of hogſheads exported each " year, for ten years, from 1747 to 1756 incluſive, " from the four ports of *Fawy*, *Falmouth*, *Penzance*, " and *St. Ives*, it appears that *Fawy* has exported " yearly 1732 hogſheads; *Falmouth*, 14631 hogſ- " heads and two-thirds; *Penzance* and *Mounts-Bay*, " 12149 hogſheads and one-third; *St. Ives*, 1282 " hogſheads: in all amounting to 29795 hogſheads. " Every hogſhead for ten years laſt paſt, together " with the bounty allowed for each hogſhead ex-

" ported,

"ported, and the oil made out of each hogſhead, "has amounted, one year with another at an a- "verage, to the price of one pound thirteen ſhil- "lings and three-pence; ſo that the caſh paid for "pilchards exported has, at a medium, annually "amounted to the ſum of forty-nine thouſand five "hundred and thirty-two pounds ten ſhillings."

The numbers that are taken at one ſhooting out of the nets, is amazingly great. Dr. *Borlaſe* aſſured me, that on the 5th of *October*, 1767, there were at one time incloſed in *St. Ives*'s *Bay* 7000 hogſheads, each hogſhead containing 35000 fiſh, in all 245000000.

DESCRIP. This fiſh has a general likeneſs to the herring, but differs in ſome particulars very eſſentially; we therefore deſcribe it comparatively with the other, having one of each ſpecies before us, both of them of the ſame length, *viz.* nine inches and an half.

The body of the pilchard is leſs compreſſed than that of the herring, being thicker and rounder: the noſe is ſhorter in proportion, and turns up: the under jaw is ſhorter.

The back is more elevated: the belly leſs ſharp: the dorſal fin of the pilchard is placed exactly in the centre of gravity, ſo that when taken up by it, the body preſerves an equilibrium, whereas that of the herring dips at the head: the dorſal fin of the pilchard we examined, being placed only three inches eight tenths from the tip of the noſe; that of the herring four inches one tenth.

The

The ſcales of the pilchard adhere very cloſely; whereas thoſe of the herring very eaſily drop off.

The pilchard is in general leſs than the herring; the ſpecimen we deſcribe being a very large one.

The pilchard is fatter, or more full of oil.

162. SPRAT. Spratti. *Wil. Icth* 221. *Raii. ſyn. piſc.* 105.
Clupea quadriuncialis, maxilla inferiore, longiore, ventre acutiſſimo. *Arted. ſynon.* 17.
Clupea Sprattus. Cl. pinna dorſali radiis tredecim. *Lin. ſyſt.* 523.
Hwuſsbuk. *Faun. Suec. N.* 358.

MR. *Willughby* and Mr. *Ray* were of opinion that theſe fiſh were the fry of the herring; we are induced to diſſent from them, not only becauſe on comparing a ſprat and young herring of equal ſize, we diſcovered ſome ſpecific differences, but likewiſe for another reaſon: the former viſit our coaſts, and continue with us in ſhoals innumerable, when the others in general have retired to the great northern deeps.

They come into the river *Thames*, below bridge the beginning of *November*, and leave it in *March* and are, during their ſeaſon, a great relief to the poor of the capital.

At *Graveſend*, and at *Yarmouth*, they are cured like red herrings; they are ſometimes pickled, and are little inferior in flavor to the *Anchovy*, but the bone

bones will not diſſolve like thoſe of the latter. Mr. *Forſter* tells me, that in the *Baltic* they preſerve them in the ſame manner, and call them *Breitling*, i. e. the little deep fiſh, as being deeper than the *Stromling*, or *Baltic* herring.

DESCRIP. The ſprat grows to about the length of five inches: the body is much deeper than that of a young herring of equal length: the back fin is placed more remote from the noſe than that of the herring, and we think had ſixteen rays. But one great diſtinction between this fiſh, the herring and pilchard, is the belly: that of the two firſt being quite ſmooth, that of the laſt moſt ſtrongly ſerrated. Another is, that the herring has fifty ſix vertebræ; this only forty eight.

Ἐνγραυλος? *Ariſt. Hiſt. an. Lib.* VI. *c.* 15.

Ἐνγρασίχολος? *Athenæus, Lib.* VII. *c.* 285.

L'Anchoy? *Belon*, 165.

Encraſicholus? *Rondel.* 211. *Geſner piſc.* 68.

Lycoſtomus, ſehe mareneken? *Schone-velde*, 46. *Tab.* 5.

Anchovy. *Wil. Icth.* 225. *Raii ſyn. piſc.* 107.

Clupea maxilla ſuperiore longiore. *Arted. ſynon.* 17.

Clupea encraſicolus. *Lin. ſyſt.* 523.

163. ANCHOVY.

THE true anchovies are taken in vaſt quantities in the *Mediterranean*, and are brought over here pickled. The great fiſhery is at *Gorgona*, a ſmall iſle weſt of *Leghorn*.

Mr. *Ray* diſcovered this ſpecies in the eſtuary of the

the *Dee* above a century ago*. Since that time no notice has been taken of it, till a few were taken near my houſe in 1769.

The length of the largeſt was ſix inches and an half: the body ſlender, but thicker in proportion than the herring.

The eyes were large: the irides white, with a caſt of yellow: the under jaw much ſhorter than the upper: the teeth ſmall; a row in each jaw, and another on the middle of the tongue. The tongue doubly ciliated on both ſides. The dorſal fin conſiſted of twelve rays, was tranſparent, and placed nearer the noſe than the tail.

The ſcales large and deciduous: back green and ſemipellucid: ſides and belly ſilvery and opake: edge of the belly ſmooth: the tail forked.

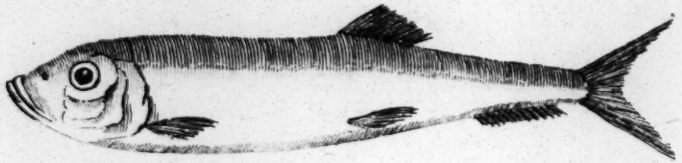
164. SHAD. Θρισσα? *Ariſt. Hiſt. an. lib.* IX. *c.* 37. *Strabo lib.* XV. 486. XVII. 566. *Athenæus, lib.* IV. 131. VII. 328. *Oppian Halieut.* I. 244.
Alauſa? *Auſonii Moſella*, 128.
Laccia, chiepa. *Salvian*, 104.
L'Aloſe. *Belon*, 307.
Thriſſa. *Rondel.* 220. *Geſner piſc.* 20.
Bayeke, Meyfiſch. *Schonevelde*, 13.
Shad, or Mother of Herrings. *Wil. Icth.* 227. *Raii ſyn. piſc.* 105.
Clupea apice maxilla ſuperiore bifido, maculis nigris utrinque. *Arted. ſynon.* 15.
Clupea aloſa. Cl. lateribus nigro maculatis, roſtro bifido. *Lin. ſyſt.* 523. *Gronov. Zooph. No.* 347.

NEITHER *Ariſtotle*, *Athenæus*, nor *Oppian*, have deſcribed their Θρισσα with ſuch pre-

* *Ray's* Letters, 47.

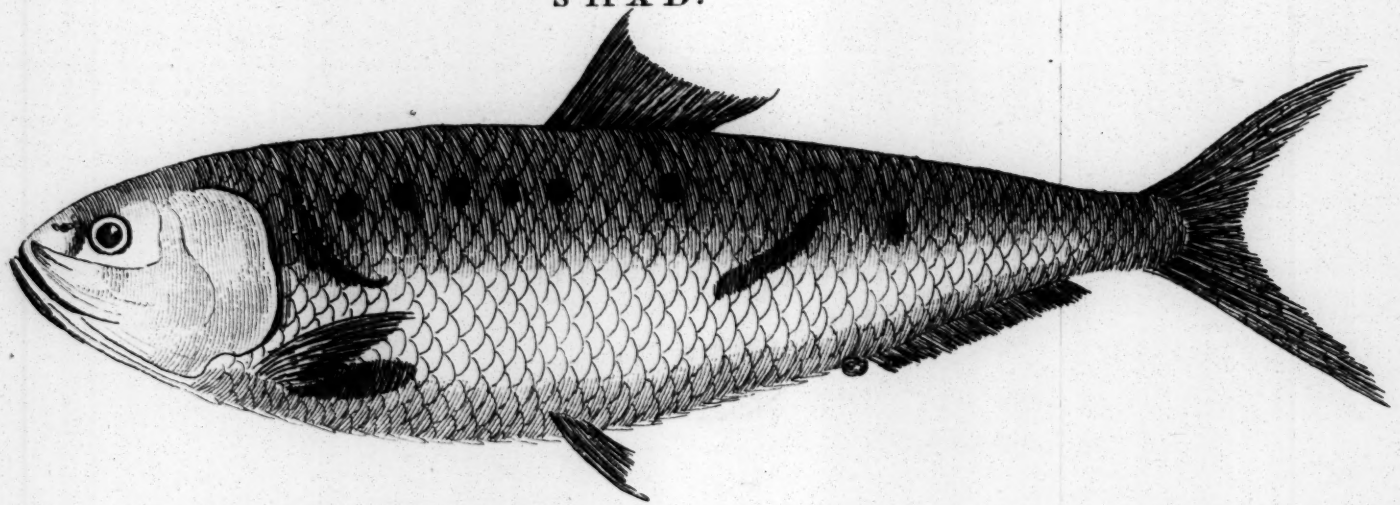
ciſion,

WHITE BAIT.



SHAD.

No 164.



ciſion, as to induce us to tranſlate it the *Shad*, without affixing to it our ſceptic mark. *Auſonius* has been equally negligent in reſpect to his *Alauſa*: all he tells us is, that it was a very bad fiſh:

Stridenteſque focis obſonia plebis ALAUSAS.

Alauſæ crackling on the embers are
Of wretched poverty, th' inſipid fare.

But commentators have agreed to render the Θρισσα of the firſt, and the *Alauſa* of the laſt, by the word *Shad*. Perhaps they were directed by the authority of *Strabo*, who mentions the Θρισσα the ſuppoſed *Shad*, and the Κεφευς, or *Mullet*, as fiſh that aſcend the *Nile* at certain ſeaſons, which, with the *Dolphin** of that river, he ſays, are the only kinds that venture up from the ſea for fear of the crocodile. That the two firſt are fiſh of paſſage in the *Nile*, is confirmed to us by *Belonius* †, and by *Haſſelquiſt* ‡. The laſt ſays it is found in the *Mediterranean* near *Smyrna*, and on the coaſt of *Ægypt*, near *Roſetto*; and that in the months *December* and *January* it aſcends the *Nile*, as high as *Cairo*: that it is ſtuffed with pot marjoram, and

* This is the *Dolphin* of the *Nile*, a fiſh now unknown to us. *Pliny lib.* VIII. *c.* 25. ſays, it had a ſharp fin on its back, with which it deſtroyed the crocodile, by thruſting it into the belly of that animal, the only penetrable place.

† *Belon. Itin.* 98.

‡ *P.* 385. 388. *Swediſh* edition.

when

when dreſſed in that manner will very nearly intoxicate the eater.

In *Great Britain* the *Severn* affords this fiſh in higher perfection than any other river. It makes its firſt appearance there in *May*, but in very warm ſeaſons in *April*; for its arrival, ſooner or later, depends much on the temper of the air. It continues in the river about two months, and then is ſucceeded by a variety which we ſhall have occaſion to mention hereafter.

The *Severn* ſhad is eſteemed a very delicate fiſh about the time of its firſt appearance, eſpecially in that part of the river that flows by *Glouceſter*, where they are taken in nets, and uſually ſell dearer than ſalmon: ſome are ſent to *London*, where the fiſhmongers diſtinguiſh them from thoſe of the *Thames*, by the *French* name of *Aloſe*.

Whether they ſpawn in this river and the *Wye* is not determined, for their fry has not yet been aſcertained. The old fiſh come from the ſea into the river in full roe. In the months of *July* and *Auguſt*, multitudes of bleak frequent the river near *Glouceſter*; ſome of them are as big as a ſmall herring, and theſe the fiſhermen erroneouſly ſuſpect to be the fry of the ſhad. Numbers of theſe are taken near *Glouceſter* in thoſe months only, but none of the emaciated ſhad are ever caught in their return *.

* *Belon* alſo obſerves, that none are taken in their return, *on les prend en montant contre les rivieres, et jamais en deſcendant.*

The

The *Thames* ſhad does not frequent that river till the latter end of *May* or beginning of *June*, and is eſteemed a very inſipid coarſe fiſh. The *Severn* ſhad is ſometimes caught in the *Thames*, though rarely, and called *Allis* (no doubt *Aloſe*, the *French* name) by the fiſhermen, in that river. About the ſame time, and rather earlier, the variety called near *Glouceſter* the *Twaite*, makes its appearance, and is taken in great numbers in the *Severn*, and is held in as great diſrepute as the ſhad of the *Thames*. The differences between each variety are as follow: TWAITE.

The true *Shad* weighs ſometimes eight pounds, but their general ſize is from four to five.

The *Twaite*, on the contrary, weighs from half a pound to two pounds, which it never exceeds.

The twaite differs from a ſmall ſhad only in having one or more round black ſpots on the ſides; if only one, it is always near the gill, but commonly there are three or four, placed one under the other *.

The other particulars agree in each ſo exactly, that the ſame deſcription will ſerve for both. DESCRIP.

The head ſlopes down conſiderably from the back, which at the beginning is very convex, and rather ſharp: the body from thence grows gradually leſs to the tail.

* I muſt here acknowledge my obligations to Doctor *Lyſons*, of *Glouceſter*, for his communications relating to this fiſh, as well as to ſeveral other articles relating to thoſe of the *Severn*.

The

The under jaw is rather longer than the upper; the teeth very minute.

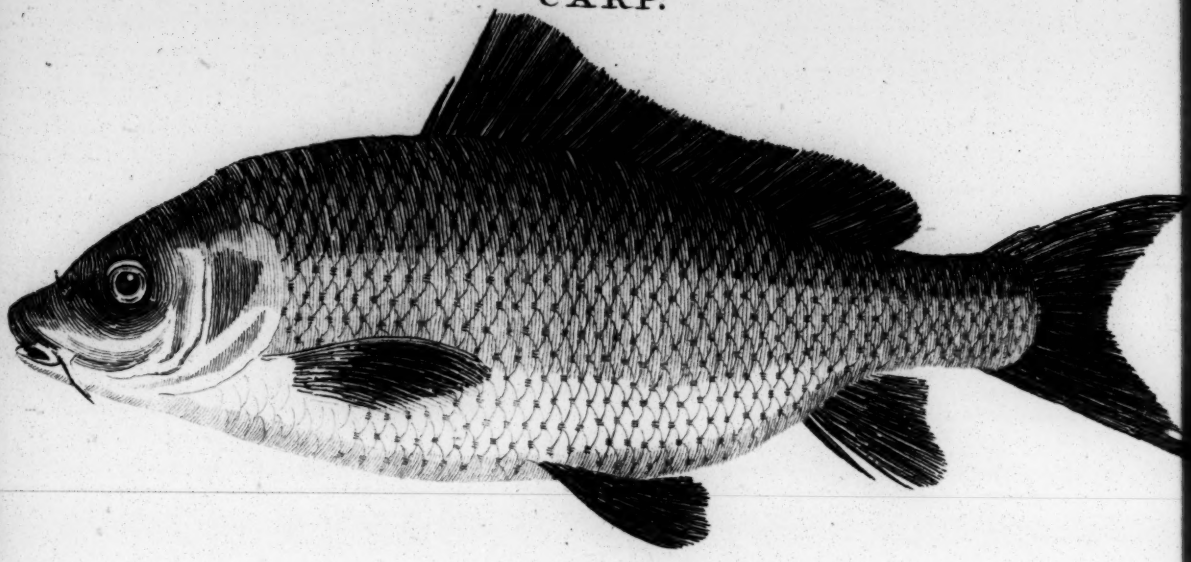
The dorſal fin is placed very near the centre, is ſmall, and the middle rays are the longeſt: the pectoral and ventral fins are ſmall: the tail vaſtly forked: the belly extremely ſharp, and moſt ſtrongly ſerrated.

The back is of a duſky blue: above the gills begins a line of dark ſpots, which mark the upper part of the back on each ſide; the number of theſe ſpots is uncertain in different fiſh, from four to ten.

The

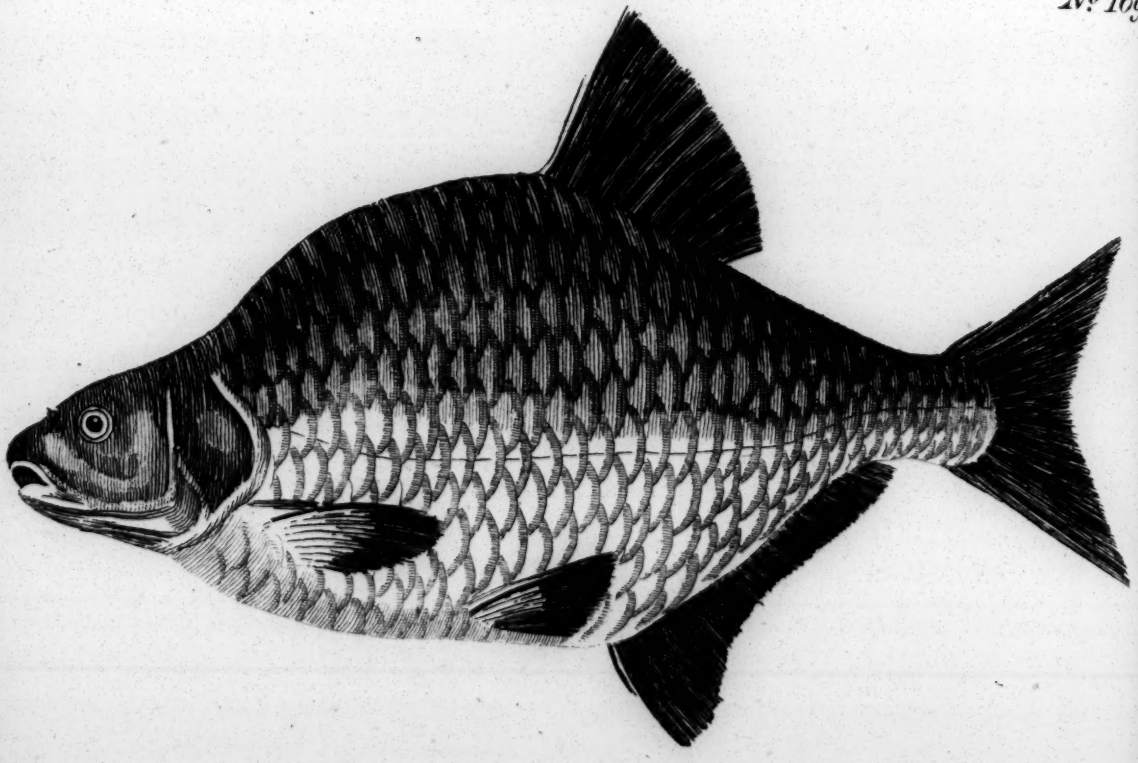
Nº 163

CARP.



BREAM.

Nº 169



The mouth without teeth.
Three branchioſtegous rays.
One dorſal fin.

XL. CARP.

* With bearded mouths.

Κυπρινος ? *Ariſt. Hiſt. an. lib.* IV. 8. VI. 40. VIII. 20. II. 30. *Oppian Halieut.* I. 101. 592.
Raina Burbara. *Salvian.* 92.
La Carpe. *Belon*, 267.
Cyprinus. *Rondel. fluviat.* 150. *Geſner piſc.* 309.
Cyprinus nobilis, edle Karpe, Karpffe. *Schonevelde*, 32.
Carp. *Wil. Icth.* 245. *Raii ſyn. piſc.* 115.
Cyprinus cirris quatuor, oſſiculo tertio pinnarum dorſi, ac ani uncinulis armato. *Arted. ſynon.* 3.
Cyprinus carpio. C. pinna ani radiis 9. cirris 4. pinna dorſalis radio ſecundo poſtice ſerrato. *Lin. ſyſt.* 525. *Gronov. Zooph. No.* 330.
Karp. *Faun. Suec. No.* 359.

165. CARP.

THIS is one of the naturalized fiſh of our country, having been introduced by *Leonard Maſchal*, about the year 1514 *, to whom we were alſo indebted for that excellent apple the *pepin*. The many good things that our iſland wanted before that period, are enumerated in this old diſtich:

Turkies, carps, hops, pickerel, and beer,
Came into *England* all in one year. †

As

* *Fuller's Britiſh Worthies, Suſſex.* 113.

† I inſert this note to ſhew that it was known here before. The extract was made from *the Boke of St. Albon's* printed at *Weſtminſter*, by *Wynkyn de Worde*, in the year 1496. I think myſelf much obliged to Mr. *Haworth*, in *Chancery-lane*, not only for this but ſeveral other curious remarks.

'The carpe is a dayntous fiſshe, but there ben but fewe in *Englonde*, and therfore I wryte the caſſe of him. For he is too ſtronge enarmyd in the mouthe that there may noo weke harnays hold hym. And as touchyne his baytes, I have but lytyll knoolege of it, and we were loth to wryte more than 'I know

Ruſſia wants theſe fiſh at this day; *Sweden* has them only in the ponds of the people of faſhion; *Poliſh Pruſſia* is the chief ſeat of the carp; they abound in the rivers and lakes of that country, particularly in the *Friſch* and *Curiſch-haff*, where they are taken of a vaſt ſize. They are there a great article of commerce, and ſent in well-boats to *Sweden* and *Ruſſia*. The merchants purchaſe them out of the waters of the *nobleſſe* of the country, who draw a good revenue from this article. Neither are there wanting among our gentry, inſtances of ſome who make good profit of their ponds.

The antients do not ſeparate the carp from the ſea fiſh. We are credibly informed that they are ſometimes found in the harbor of *Dantzick*, between the town and a ſmall place called *Hela*.

Carp are very long-lived. *Geſner* * brings an inſtance of one that was an hundred years old. They alſo grow to a very great ſize. On our own knowledge we can ſpeak of none that exceeded twenty pounds in weight: but *Jovius* † ſays, that they were ſometimes taken in the *Lacus Larius* (the *Lago di Como*) of two hundred pounds weight: and *Rzaczynſki* ‡ mentions others taken in the *Dnieſter* that were five feet in length.

‘ I know and have provyd. But well I wote that the redde
‘ worm and the menow ben good baytyn for him at all
‘ tymes, as I have herd ſaye of perſones credyble, and alſo
‘ founde wryten in bokes of credence.

* *Geſner piſc.* 312. † *De piſcibus Romanis*, 131.
‡ *Hiſt. Nat. Poloniæ*, 142.

They

They are alſo extremely tenacious of life, and will live for a moſt remarkable time out of water. An experiment has been made by placing a carp in a net, well wrapped up in wet moſs, the mouth only remaining out, and then hung up in a cellar, or ſome cool place: the fiſh is frequently fed with white bread and milk, and is beſides often plunged into water. Carp thus managed have been known, not only to have lived above a fortnight, but to grow exceedingly fat, and far ſuperior in taſte to thoſe that are immediately killed from the pond *.

FOECUNDITY.

The carp is a prodigious breeder: its quantity of roe has been ſometimes found ſo great, that when taken out and weighed againſt the fiſh itſelf, the former has been found to preponderate. From the ſpawn of this fiſh *Caviare* is made for the *Jews*, who hold this ſturgeon in abhorrence. We have forbore in this work to enter into minute calculations of the numbers each fiſh may produce. It has already been moſt ſkilfully performed by Mr. *Harmer*, and printed in the *Philoſophical Tranſactions* of the year 1767. We ſhall, in our Appendix, take the liberty of borrowing ſuch part of his tables of the fœcundity of fiſh, as will demonſtrate the kind attention of Providence, towards the

* This was told me by a gentleman of the utmoſt veracity, who had twice made the experiment. The ſame fact is related by that pious Philoſopher Doctor *Derham*, in his *Phyſico-Theology*, edit. 9th. 1737. *ch.* 1. *p.* 7. *n. e.*

preſerving ſo uſeful a claſs of animals for the ſervice of its other creatures.

Theſe fiſh are extremely cunning, and on that account are by ſome ſtyled the *river fox*. They will ſometimes leap over the nets, and eſcape that way; at others, will immerſe themſelves ſo deep in the mud, as to let the net paſs over them. They are alſo very ſhy of taking a bait; yet at the ſpawning time they are ſo ſimple, as to ſuffer themſelves to be tickled, handled, and caught by any body that will attempt it.

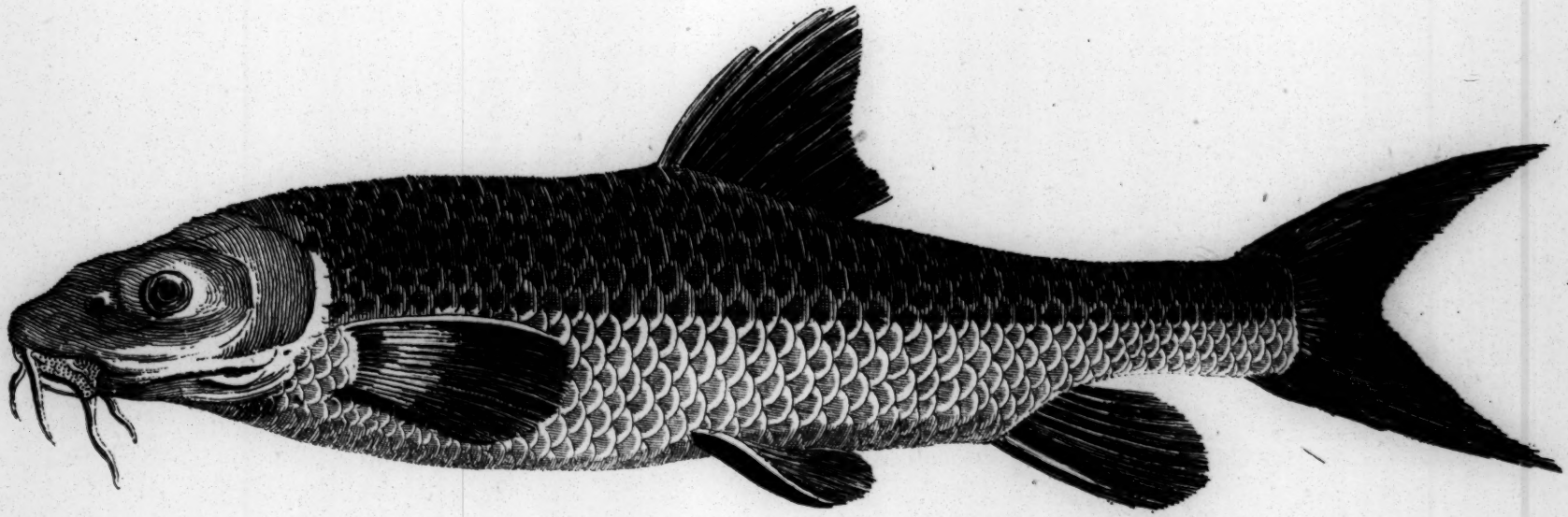
This fiſh is apt to mix its milt with the roe of other fiſh, from which is produced a ſpurious breed: we have ſeen the offspring of the carp and tench, which bore the greateſt reſemblance to the firſt: have alſo heard of the ſame mixture between the carp and bream.

Descrip. The carp is of a thick ſhape: the ſcales very large, and when in beſt ſeaſon of a fine gilded hue.

The jaws are of equal length; there are two teeth in the jaws, or on the tongue; but at the entrance of the gullet, above and below, are certain bones that act on each other, and comminute the food before it paſſes down.

On each ſide of the mouth is a ſingle beard; above thoſe on each ſide another, but ſhorter: the dorſal fin extends far towards the tail, which is a little bifurcated; the third ray of the dorſal fin is very ſtrong, and armed with ſharp teeth, pointing

BARBEL.



ing downwards; the third ray of the anal fin is conſtructed in the ſame manner.

Barbus. *Auſonius Moſella*, 94.
Barbeau. *Belon*, 299.
Barbus, Barbo. *Salvian*, 86.
Barbus. *Rondel. fluviat.* 194. *Geſner piſc.* 123.
Barbe, Barble. *Schonevelde*, 29.
Barbel. *Wil. Icth.* 259. *Raii ſyn. piſc.* 121.
Cyprinus oblongus, maxilla ſuperiore longiore, cirris quatuor, pinna ani officulorum ſeptem. *Arted. ſynon.* 8. 166. BARBEL.
Cyprinus Barbus. C. pinna ani radiis 7. cirris 4. pinnæ dorſi radio ſecundo utrinque ſerrato. *Lin. ſyſt.* 525. *Gronov. Zooph. No.* 331.
Barbe, Barble. *Wulff Boruſs. No.* 52.

THIS fiſh was ſo extremely coarſe, as to be overlooked by the antients till the time of *Auſonius*, and what he ſays is no panegyric on it; for he lets us know it loves deep waters, and that when it grows old it was not abſolutely bad.

Laxos exerces BARBE *natatus,*
Tu melior pejore ævo, tibi contigit uni
Spirantum ex numero non inlaudata ſenectus.

It frequents the ſtill and deep parts of rivers, and lives in ſociety, rooting like ſwine with their noſes in the ſoft banks. It is ſo tame as to ſuffer itſelf to be taken with the hand; and people have been known to take numbers by diving for them. In ſummer they move about during night in ſearch

of food, but towards autumn, and during winter, confine themſelves to the deepeſt holes.

They are the worſt and coarſeſt of freſh water fiſh, and ſeldom eat but by the poorer ſort of people, who ſometime boil them with a bit of bacon to give them a reliſh. The roe is very noxious, affecting thoſe who unwarily eat of it with a nauſea, vomiting, purging, and a ſlight ſwelling.

Descrip. It is ſometimes found of the length of three feet, and eighteen pounds in weight: it is of a long and rounded form: the ſcales not large.

Its head is ſmooth: the noſtrils placed near the eyes: the mouth is placed below: on each corner is a ſingle beard, and another on each ſide the noſe.

The dorſal fin is armed with a remarkable ſtrong ſpine, ſharply ſerrated, with which it can inflict a very ſevere wound on the incautious handler, and even do much damage to the nets.

The pectoral fins are of a pale brown color; the ventral and anal tipped with yellow: the tail a little bifurcated, and of a deep purple: the ſide line is ſtrait.

The ſcales are of a pale gold color, edged with black: the belly is white.

Tinca. *Auſonius Moſella*, 123.
Tinca. *Jovius*, 124.
Tinca, Tenca. *Salvian*, 90.
La Tanche. *Belon*, 325.
Tinca. *Rondel. fluviat.* 157. *Geſner piſc.* 984.
Schley, Slye. *Schonevelde*, 76.
Tench. *Wil. Icth.* 251. *Raii ſyn. piſc.* 117.
Cyprinus mucoſus totus nigreſcens, extremitate caudæ æquali. *Arted. ſynon.* 5.
Cyprinus pinna ani radiis 25, cauda integra, corpore mucoſo, cirris 2. *Lin. ſyſt.* 526. *Gronov. Zooph. No.* 328.
Suture, Linnare, Skomakare. *Faun. Suec. No.* 363.
Schleihe, Schlegen. *Wulff Boruſs. No.* 55.

167. TENCH.

THE tench underwent the ſame fate with the barbel, in reſpect to the notice taken of it by the early writers; and even *Auſonius*, who firſt mentions it, treats it with ſuch diſreſpect, as evinces the great capriciouſneſs of taſte; for that fiſh, which at preſent is held in ſuch good repute, was in his days the repaſt only of the *Canaille*.

Quis non et virides vulgi ſolatia Tincas
Norit?

It has been by ſome called the *Phyſician* of the fiſh, and that the ſlime is ſo healing, that the wounded apply it as a ſtyptic. The ingenious Mr. *Diaper*, in his *piſcatory* ecloges, ſays, that even the voracious pike will ſpare the tench on account of its healing powers:

The *Tench* he ſpares a medicinal kind:
For when by wounds diſtreſt, or ſore diſeaſe,
He courts the ſalutary fiſh for eaſe;
Cloſe to his ſcales the kind phyſician glides,
And ſweats a healing balſam from his ſides *.

Whatever virtue its ſlime may have to the inhabitants of the water, we will not vouch for, but its fleſh is a wholeſome and delicious food to thoſe of the earth. The *Germans* are of a different opinion. By way of contempt, they call it *Shoemaker*. *Geſner* even ſays, that it is inſipid and unwholeſome.

It does not commonly exceed four or five pounds in weight, but we have heard of one that weighed ten pounds; *Salvianus* ſpeaks of ſome that arrived at twenty pounds.

They love ſtill waters, and are rarely found in rivers: they are very fooliſh, and eaſily caught.

DESCRIP. The tench is thick and ſhort in proportion to its length; the ſcales are very ſmall, and covered with ſlime.

The irides are red: there is ſometimes, but not always, a ſmall beard at each corner of the mouth.

The color of the back is duſky; the dorſal and ventral fins of the ſame color: the head, ſides, and belly, of a greeniſh caſt, moſt beautifully mixed with gold, which is in its greateſt ſplendor when the fiſh is in the higheſt ſeaſon.

* *Ecl.* II.

The

Touch

De tous propos lorsque la Touche
Parmy les dez. laissez le penche

Rabelais I. ch. 39

The tail is quite even at the end, and very broad.

Gobio. *Auſonius Moſella*, 132.
Gobio fluviatilis. *Salvian*, 214.
Goujon de riviere. *Belon*, 322.
Gobio fluviatilis. *Rondel. fluviat.* 206. *Geſner piſc.* 399.
Gudgeon. *Wil. Icth.* 264.
Raii ſyn. piſc. 123.
Cyprinus quincuncialis maculoſus, maxilla ſuperiore longiore cirris duobus ad os. *Arted. ſynon.* 2.
Cyprinus pinna ani radiis 2. *Lin. Syſt. Nat.* 526. *Gronov. Zooph. No.* 329.

168. GUDGEON.

ARISTOTLE mentions the gudgeon in two places; once as a river fiſh, and again as a ſpecies that was gregarious: in a third place he deſcribes it as a ſea fiſh; we muſt therefore conſider the Κωβιος he mentions, *lib.* IX. *c.* 2. and *lib.* VIII. *c.* 19. as the ſame with our ſpecies *.

This fiſh is generally found in gentle ſtreams, and is of a ſmall ſize: thoſe few, however, that are caught in the *Kennet*, and *Cole*, are three times the weight of thoſe taken elſewhere. The largeſt we ever heard of was taken near *Uxbridge*, and weighed half a pound.

They bite eagerly, and are aſſembled by raking the bed of the river; to this ſpot they immediately crowd in ſhoals, expecting food from this diſturbance.

* The gudgeon is enumerated among the *Syrian* fiſh, by Dr. *Ruſſel*, p. 75.

The

Descrip. The ſhape of the body is thick and round: the irides tinged with red: the gill covers with green and ſilver: the lower jaw is ſhorter than the upper: at each corner of the mouth is a ſingle beard: the back olive, ſpotted with black: the ſide line ſtrait; the ſides beneath that ſilvery: the belly white.

The tail is forked; that, as well as the dorſal fin, is ſpotted with black.

** Without Beards.

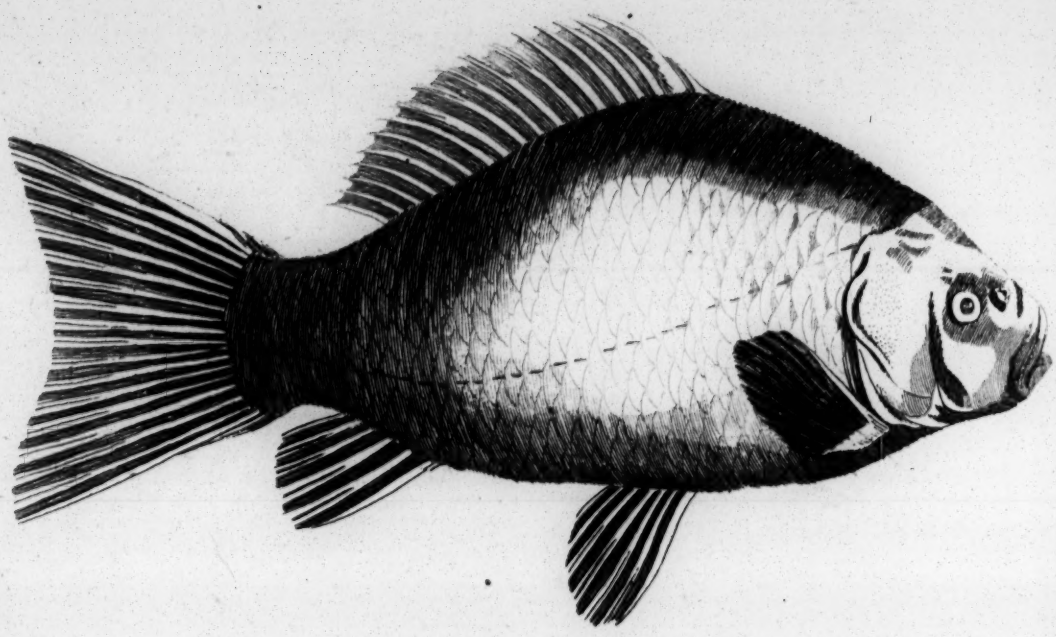
169. Bream. La Bremme. *Belon*, 318.
Cyprinus latus ſive Brama. *Rondel. fluviat.* 154. *Geſner piſc.* 316, 317.
Braſſem, Brachſem. *Schonevelde*, 33.
Bream. *Wil. Icth.* 248. *Raii ſyn. piſc.* 116.
Cyprinus pinnis omnibus nigreſcentibus, pinna ani officulorum viginti ſeptem. *Arted. ſynon.* 4.
Cyprinus Brama. *Lin. ſyſt.* 531. *Gronov. Zooph. No.* 345.
Braxen. *Faun. Suec. No.* 360.
Gareikl. *Kram.* 391. Brekmen. *Wulff Boruſs. No.* 66.

THE bream is an inhabitant of lakes, or the deep parts of ſtill rivers. It is a fiſh that is very little eſteemed, being extremely inſipid.

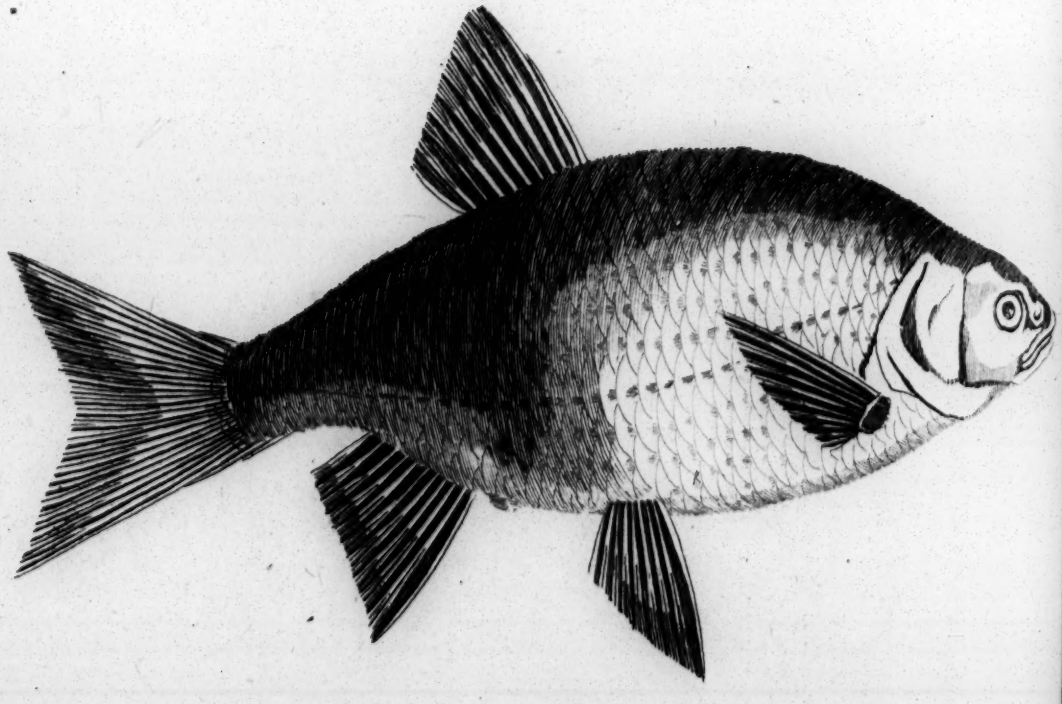
It is extremely deep, and thin in proportion to its length. The back riſes very much, and is very ſharp at the top. The head and mouth are ſmall:

on

Nº 171.



CRUSIAN.



RUD.

Nº 170

on ſome we examined in the ſpring, were abundance of minute whitiſh tubercles; an accident which *Pliny* ſeems to have obſerved befals the fiſh of the *Lago Maggiore*, and *Lago di Como**. The ſcales are very large: the ſides flat and thin.

The dorſal fin has eleven rays, the ſecond of which is the longeſt: that fin, as well as all the reſt, are of a duſky color; the back of the ſame hue: the ſides yellowiſh.

The tail is very large, and of the form of a creſcent.

Χαραξ? *Athenæus*, lib. VIII. 355. *Oppian Halieut.* I. 174.
La Pleſtia? *Belon*, 309. La Roſſe, 319.
Finſcale. *Plot's Oxf.* 184.
Rutilus latior, ſeu Rubellio fluviatilis a Rud, Roud, or Finſcale. *Wil. Icth.* 252. *Raii ſyn. piſc.* 118.
Cyprinus. *Arted. ſynon.* 6. *No.* 8.
Cyprinus erythropthalmus. Cyprinus pinna ani radiis 15. pinnis rubris. *Lin. ſyſt. Nat.* 530.
Sarf. Iſarf. *Faun. Suec. No.* 366.

170. RUD.

THIS fiſh is found in the *Charwell*, near *Oxford*, in the *Witham* in *Lincolnſhire*, and in the fens in *Holderneſs*.

* *Duo Lacus* ITALIÆ *in radicibus Alpium*, LARIUS *et* VERBANUS *appellantur, in quibus piſces omnibus annis* VERGILIARUM *ortu exiſtunt, ſquamis conſpicui crebris atque præacutis, clavorum caligarium effigie: nec amplius quam circa eum menſem, viſuntur.* lib. IX. *c.* 18.

Its

Its body is extremely deep, like that of the bream, but much thicker.

Descrip. The head is ſmall: the irides yellow, varying in ſome almoſt to redneſs: the noſtrils large: the back vaſtly arched, and ſloping off ſuddenly to the head and tail: the ſcales very large: the ſide line very ſlightly incurvated.

The dorſal fin conſiſts of eleven rays; the firſt very ſhort, the ſecond very ſtrong, and ſerrated on each ſide. The pectoral fins conſiſt of ſeventeen; the ventral of nine; the anal of thirteen rays.

The back is of an olive color: the ſides and belly of a gold color, with certain marks of red; the ventral and anal fins, and the tail, generally of a deep red: the tail forked.

We believe this to be the ſame with the *Shallow* of the *Cam*; which grows to the length of thirteen inches. It ſpawns in *April*.

171. Crucian. Cyprinus Caraſſius. *Lin. ſyſt.* Ruda, et Caruſſa. *Faun. Suec.* *N.* 364. Karauſchen. *Meyer arr.* XI. 58. Karaſs. *Geſner piſc. Paralip.* 16.

THIS ſpecies is common in many of the fiſh ponds about *London*, and other parts of the ſouth of *England*; but I believe is not a native fiſh.

It

It is very deep and thick: the back is much arched: the dorſal fin conſiſts of nineteen rays; the two firſt ſtrong and ſerrated. The pectoral fins have (each) thirteen rays; the ventral nine; the anal ſeven or eight: the lateral line parallel with the belly: the tail almoſt even at the end.

The color of the fiſh in general is a deep yellow: the meat is coarſe, and little eſteemed.

La Gardon, Roſchie 2. en *Angleterre*. *Belon*, 316.
Leuciſcus. *Rondel. fluviat.* 191.
Rutilus ſive Rubellus fluviatilis. *Geſner piſc.* 820.
Rottauge. *Schonevelde*, 63.
Roche. *Wil. Icth.* 262. Leuciſcus prior. *Rondel.* 260. *Raii ſyn. piſc.* 122, 121.
Cyprinus *ſargus* dictus. Cyp. iride pinnis ventralibus ac ani plerumque rubentibus. *Arted. ſynon.* 9, 10.
Cyprinus Rutilus. Cyp. pinna ani radiis 12. rubicunda. *Lin. ſyſt.* 529.
Mort. *Faun. Suec. No.* 372.
Zert. *Wulff Boruſs. No.* 59.
Altl. *Kram.* 395.

172. ROACH.

SOUND *as a Roach*, is a proverb that appears to be but indifferently founded, that fiſh being not more diſtinguiſhed for its vivacity than many others; yet it is uſed by the *French* as well as us, who compare people of ſtrong health to their *Gardon*, our roach.

It is a common fiſh, found in many of our deep ſtill rivers, affecting, like the others of this genus, quiet waters. It is gregarious, keeping in large ſhoals. We have never ſeen them very large.

Old

Old *Walton* ſpeaks of ſome that weighed two pounds. In a liſt of fiſh ſold in the *London* markets, with the greateſt weight of each, communicated to us by an intelligent fiſhmonger, is mention of one whoſe weight was five pounds.

The roach is deep, but thin, and the back is much elevated, and ſharply ridged: the ſcales large, and fall off very eaſily. Side line bends much in the middle towards the belly.

173. DACE.

Une vandoiſe, ou Dard. *Belon*, 313.
Leuciſci ſecunda ſpecies. *Rondel.* 192. *Geſner piſc.* 26.
Dace, or Dare. *Wil. Icth.* 260. *Raii ſyn. piſc.* 121.
Cyprinus decem digitorum, rutilo longior, et anguſtior, pinna ani radiorum decem. *Arted. ſynon.* 9.
Cyprinus leuciſcus. Cyp. pinna ani radiis 10. dorſali 9. *Lin. ſyſt.* 528.
Laugele. *Meyer's An.* II. *tab.* 97.

THIS, like the roach, is gregarious, haunts the ſame places, is a great breeder, very lively, and during ſummer is very fond of frolicking near the ſurface of the water. This fiſh and the roach are coarſe and inſipid meat.

Its head is ſmall: the irides of a pale yellow: the body long and ſlender: its length ſeldom above ten inches, though in the abovementioned liſt is an account of one that weighed a pound and an half: the ſcales ſmaller than thoſe of the roach.

The

The back is varied with duſky, with a caſt of yellowiſh green: the ſides and belly ſilvery: the dorſal fin duſky: the ventral, anal, and caudal fins red, but leſs ſo than thoſe of the former: the tail is very much forked.

The Graining. *Voy. to the Hebrides*, II. 174. GRAINING.

THE *Graining* is found in the *Merſey* near *Warrington*: has much the reſemblance of a dace, but is more ſlender, and the back ſtraiter. The uſual length about ſeven inches and a half. The depth to the length of this is as one to five, of the dace as one to four. The color of the back is ſilvery, with a bluiſh caſt. The eyes, ventral, and anal fins are red, but paler than thoſe of the dace. The pectoral fin redder.

Capito.

175. CHUB. Capito. *Auſon. Moſella*, 85.
Squalus, Squaglio. *Salvian*, 84.
Le cheveſne, Teſtard, Vilain. *Belon*, 315.
Cephalus fluviatilis. *Rondel. fluviat.* 190.
Capito ſive Cephalus fluviatilis. *Geſner piſc.* 182.
Chub, or Chevin. *Wil. Icth.* 255. *Raii ſyn. piſc.* 119.
Cyprinus oblongus macrolepidotus, pinna ani oſſiculorum undecim. *Arted. ſynon.* 7.
Cyprinus cephalus. Cyp. pinna ani radiis undecim, cauda integra, corpore ſubcylindrico. *Lin. ſyſt.* 527. *Gronov. Zooph. No.* 339.
Alte. *Meyer's An.* II. *tab.* 92.
Rapen. *Wulff Boruſs. No.* 56.

SALVIANUS imagines this fiſh to have been the *Squalus* * of the antients, and grounds his opinion on a ſuppoſed error in a certain paſſage in *Columella* and *Varro*, where he would ſubſtitute the word *Squalus* inſtead of *Scarus*: *Columella* ſays no more than that the old *Romans* payed much attention to their ſtews, and kept even the ſea fiſh in freſh water, paying as much reſpect to the *Mullet* and *Scarus* as thoſe of his days did to the *Muræna* and *Baſs*.

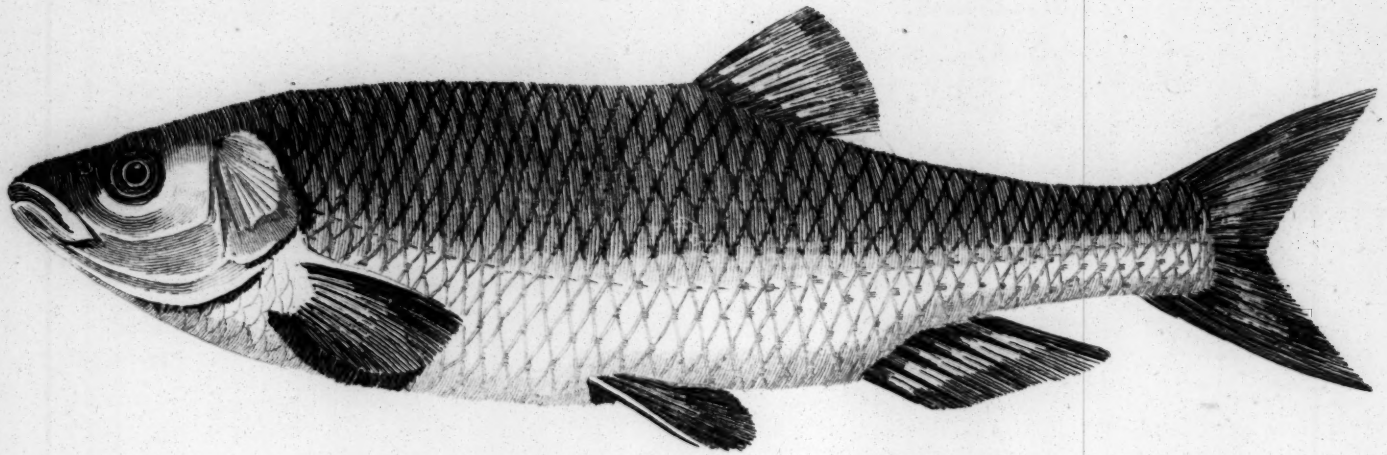
That the *Scarus* was not our *Chub*, is very evident; not only becauſe the *Chub* is entirely an inhabitant of freſh waters, but likewiſe it ſeems improbable that the *Romans* would give themſelves

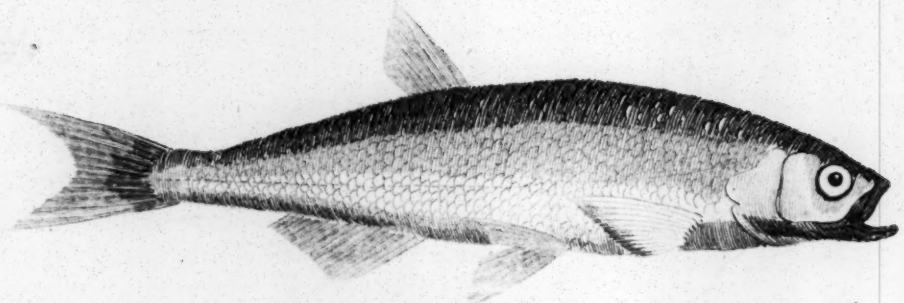
* A cartilaginous fiſh, a ſhark. *Vide Plin. lib.* IX. *c.* 24. *Ovid* alſo ranks his *Squalus* with the ſea fiſh.

Et SQUALUS, *et tenui ſuffuſus ſanguine* MULLUS. *Halieut.* 147.

any

CHUB.





BLEAK.

any trouble about the worſt of river fiſh, when they neglected the moſt delicious kinds; all their attention was directed towards thoſe of the ſea: the difficulty of procuring them ſeems to have been the criterion of their value, as is ever the caſe with effete luxury.

The chub is a very coarſe fiſh and full of bones: it frequents the deep holes of rivers, and during ſummer commonly lies on the ſurface, beneath the ſhade of ſome tree or buſh. It is a very timid fiſh, ſinking to the bottom on the leſt alarm, even at the paſſing of a ſhadow, but they will ſoon reſume their ſituation. It feeds on worms, caterpillars, graſshoppers, beetles, and other coleopterous inſects that happen to fall into the water; and it will even feed on cray-fiſh. This fiſh will riſe to a fly.

This fiſh takes its name from its head, not only in our own, but in other languages: we call it *Chub*, according to *Skinner*, from the old *Engliſh*, *Cop*, a head; the *French*, *Teſtard*; the *Italians*, *Capitone*.

It does not grow to a large ſize; we have known ſome that weighed above five pounds, but *Salvianus* ſpeaks of others that were eight or nine pounds in weight.

The body is oblong, rather round, and of a pretty equal thickneſs the greateſt part of the way: the ſcales are large.

The irides ſilvery; the cheeks of the ſame color: the head and back of a deep duſky green: the

ſides ſilvery, but in the ſummer yellow: the belly white: the pectoral fins of a pale yellow: the ventral and anal fins red: the tail a little forked, of a browniſh hue, but tinged with blue at the end.

176. BLEAK.

Alburnus. *Auſon. Moſella*, 126.
Able ou Ablette. *Belon*, 319.
Alburnus. *Rondel. fluviat.* 208. *Geſner piſc.* 23.
Albula minor. Witinck, Witek and Blike. *Schonevelde*, II. *Tab.* 1.
Bleak. *Wil. Icth.* 263. *Raii ſyn. piſc.* 123.
Cyprinus quincuncialis, pinna ani officulorum viginti. *Arted. ſynon.* 10.
Cyprinus alburnus. *Lin. ſyſt.* 531. *Gronov. Zooph. No.* 336.
Loja. *Faun. Suec. No.* 373.
Spitſlauben, ſchneiderfiſchl. *Kram.* 395.
Ukeleyen. *Wulff Boruſs. No.* 64.

THE taking of theſe, *Auſonius* lets us know, was the ſport of children,

ALBURNOS *prædam puerilibus hamis.*

They are very common in many of our rivers, and keep together in large ſhoals. Theſe fiſh ſeem at certain ſeaſons to be in great agonies; they tumble about near the ſurface of the water, and are incapable of ſwimming far from the place, but in about two hours recover, and diſappear. Fiſh thus affected the *Thames* fiſhermen call *mad bleaks*. They ſeem to be troubled with a ſpecies of *Gordius* or hair-worm, of the ſame kind with thoſe

thoſe which *Ariſtotle* * ſays that the *Ballerus* and *Tillo* are infeſted with, which torments them ſo that they riſe to the ſurface of the water and then die.

ARTIFICIAL PEARLS.

Artificial pearls are made with the ſcales of this fiſh, and we think of the dace. They are beat into a fine powder, then diluted with water, and introduced into a thin glaſs bubble, which is afterwards filled with wax. The *French* were the inventors of this art. Doctor *Liſter* † tells us, that when he was at *Paris*, a certain artiſt uſed in one winter thirty hampers full of fiſh in this manufacture.

DESCRIP.

The bleak ſeldom exceeds five or ſix inches in length: their body is ſlender, greatly compreſſed ſideways, not unlike that of the ſprat.

The eyes are large: the irides of a pale yellow: the under jaw the longeſt: the lateral line crooked: the gills ſilvery: the back green: the ſides and belly ſilvery: the fins pellucid: the ſcales fall off very eaſily: the tail much forked.

WHITE BAIT.

During the month of *July* there appear in the *Thames*, near *Blackwall* and *Greenwich*, innumerable multitudes of ſmall fiſh, which are known to the *Londoners* by the name of *White Bait*. They are eſteemed very delicious when fried with fine flour, and occaſion, during the ſeaſon, a vaſt reſort of the lower order of epicures to the taverns contiguous to the places they are taken at.

* *Hiſt. an. lib.* VIII. *c.* 20.

† Journey to *Paris*, 142.

There are various conjectures about this ſpecies, but all terminate in a ſuppoſition that they are the fry of ſome fiſh, but few agree to which kind they owe their origin. Some attribute it to the ſhad, others to the ſprat, the ſmelt, and the bleak. That they neither belong to the ſhad, nor the ſprat, is evident from the number of branchioſtegous rays, which in thoſe are eight, in this only three. That they are not the young of ſmelts is as clear, becauſe they want the *pinna adipoſa*, or rayleſs fin; and that they are not the offspring of the bleak is extremely probable, ſince we never heard of the white bait being found in any other river, notwithſtanding the bleak is very common in ſeveral of the *Britiſh* ſtreams: but as the white bait bears a greater ſimilarity to this fiſh than to any other we have mentioned, we give it a place here as an appendage to the bleak, rather than form a diſtinct article of a fiſh which it is impoſſible to claſs with certainty.

It is evident that it is of the carp or *Cyprinus* genus: it has only three branchioſtegous rays, and only one dorſal fin; and in reſpect to the form of the body is compreſſed like that of the bleak.

Its uſual length is two inches: the under jaw is the longeſt: the irides ſilvery, the pupil black: the dorſal fin is placed nearer to the head than to the tail, and conſiſts of about fourteen rays: the ſide line is ſtrait: the tail forked, the tips black.

The

The head, ſides, and belly are ſilvery; the back tinged with green.

Φοξινος? *Ariſt. Hiſt. an.* VI. *c.* 13.
Le Veron. *Belon*, 324.
Piſciculus varius. *Rondel. fluviat.* 205.
Phoſcium qui vulgo *veronus* (quaſi varius) dicitur, *Bellonius. Geſner piſc.* 715.
Elritze, Elderitze. *Schonevelde*, 57.
Pink, Minim, or Minow. *Wil. Icth.* 268. *Raii ſyn.* 177. MINOW. *piſc.* 125.
Cyprinus tridactylus varius oblongus teretiuſculus, pinna ani oſſiculorum octo. *Arted. ſynon.* 12.
Cyprinus Phoxinus. Cyp. pinna ani radiis 8. macula fuſca ad caudam, corpore pellucido. *Lin. ſyſt.* 528.

THIS beautiful fiſh is frequent in many of our ſmall gravelly ſtreams, where they keep in ſhoals.

The body is ſlender and ſmooth, the ſcales being extremely ſmall. It ſeldom exceeds three inches in length.

The lateral line is of a golden color: the back flat, and of a deep olive: the ſides and belly vary greatly in different fiſh; in a few are of a rich crimſon, in others bluiſh, in others white. The tail is forked, and marked near the baſe with a duſky ſpot.

178. GOLDEN.

Kingo, the Gold Fiſh. *Kæmpfer Hiſt. Japan*, I. 137.
Kin-yu. *Du Halde Hiſt. China*. I. 19. 315.
Cyprinus auratus. Cyp. pinna ani gemina, cauda tranſverſa bifurca. *Lin. ſyſt.* 527. *Faun. Suec.* tab 2. *Gronov. Zooph. No.* 342.
Gold Fiſh. *Edw.* 209.
Kin-yu, five carpio auratus. *Baſter ſubſec.* II. 78.

THESE fiſh are now quite naturalized in this country, and breed as freely in the open waters as the common carp.

They were firſt introduced into *England* about the year 1691, but were not generally known till 1728, when a great number were brought over, and preſented firſt to Sir *Mathew Dekker*, and by him circulated round the neighborhood of *London*, from whence they have been diſtributed to moſt parts of the country.

In *China* the moſt beautiful kinds are taken in a ſmall lake in the province of *Che-Kyang*. Every perſon of faſhion keeps them for amuſement, either in porcellane veſſels, or in the ſmall baſons that decorate the courts of the *Chineſe* houſes. The beauty of their colors, and their lively motions, give great entertainment, eſpecially to the ladies, whoſe pleaſures, by reaſon of the cruel policy of that country, are extremely limited.

In form of the body they bear a great reſemblance to a carp. They have been known in this iſland

iſland to arrive at the length of eight inches; in their native place they are ſaid * to grow to the ſize of our largeſt herring.

The noſtrils are tubular, and form ſort of appendages above the noſe: the dorſal fin and the tail vary greatly in ſhape: the tail is naturally bifid, but in many is trifid, and in ſome even quadrifid: the anal fins are the ſtrongeſt characters of this ſpecies, being placed not behind one another like thoſe of other fiſh, but oppoſite each other like the ventral fins.

The colors vary greatly; ſome are marked with a fine blue, with brown, with bright ſilver; but the general predominant color is gold of a moſt amazing ſplendor; but their colors and form need not be dwelt on, ſince thoſe who want opportunity of ſeeing the living fiſh, may ſurvey them expreſſed in the moſt animated manner, in the works of our ingenious and honeſt friend Mr. *George Edwards*.

* *Du Halde*, 316.

APPENDIX.

APPENDIX.

THE late Biſhop of *Carliſle* informed me that a tortoiſe was taken off the coaſt of *Scarborough* in 1748 or 1749. It was purchaſed by a family at that time there, and a good deal of company invited to partake of it. A gentleman, who was one of the gueſts, told them it was a *Mediterranean* turtle, and not wholeſome: only one of the company eat of it, and it almoſt killed him, being ſeized with a dreadful vomiting and purging. TORTOISE, PAGE 7.

Since the printing of that article I have been favored with ſome very curious accounts of this reptile, which will give greater light into its natural hiſtory than I am capable of, from a moſt unphiloſophical but invincible averſion to the whole genus. The facts that will appear in the following lines ſerve to confirm my opinion of its being an innoxious animal, and, I hope, will ſerve to free numbers TOAD, 13.

numbers from a panic that is carried to a degree of infelicity, and alſo to redeem it from a perſecution which the unmerited ill-opinion the world has conceived, perpetually expoſes it to.

The gentlemen I am principally indebted to for my informations are *J. Arſcott*, Eſq; of *Tehott*, in *Devonſhire*, and Mr. *Pitfield*, of *Exeter*. Some of theſe accounts were addreſſed to Doctor *Milles*, Dean of *Exeter*; others to the worthy Prelate above-mentioned, to whom I owe theſe and many other agreeable correſpondencies; others again to myſelf.

Mr. *Arſcott*'s letters give a very ample hiſtory of the nature of the toad: they were both addreſſed to Doctor *Milles*, and both were the reſult of certain queries I propoſed, which the former was ſo obliging as to give himſelf the trouble of anſwering in a moſt ſatisfactory manner.

I ſhall firſt take the liberty of citing Mr. *Arſcott*'s letter of *September* the 23d, 1768, which mentions ſome very curious particulars of this innocent reptile, which, for ſuch a number of years, found an aſylum from the good ſenſe of a family which ſoared above all vulgar prejudices.

"It would give me the greateſt pleaſure to be "able to inform you of any particulars worthy Mr. "*Pennant*'s notice, concerning the toad who lived "ſo many years with us, and was ſo great a favo-"rite. The greateſt curioſity in it was its becom-"ing ſo remarkably tame. It had frequented ſome

"ſteps

"ſteps before the hall-door ſome years before my "acquaintance commenced with it, and had been "admired by my father for its ſize (which was of "the largeſt I ever met with) who conſtantly payed "it a viſit every evening. I knew it myſelf above "thirty years, and by conſtantly feeding it, brought "it to be ſo tame that it always came to the can-"dle, and looked up as if expecting to be taken "up and brought upon the table, where I always "fed it with inſects of all ſorts: it was fondeſt of "fleſh maggots, which I kept in bran; it would "follow them, and when within a proper diſtance, "would fix its eye, and remain motionleſs for near "a quarter of a minute, as if preparing for the "ſtroke, which was an inſtantaneous throwing its "tongue at a great diſtance upon the inſect, which "ſtuck to the tip by a glutinous matter: the mo-"tion is quicker than the eye can follow*.

"I always imagined that the root of its tongue "was placed in the fore part of its under jaw, and "the tip towards its throat, by which the motion "muſt be a half circle; by which, when its tongue "recovered its ſituation, the inſect at the tip would "be brought to the place of deglutition. I was "confirmed in this by never obſerving any internal "motion in its mouth, excepting one ſwallow the "inſtant its tongue returned. Poſſibly I might be

* This rapid capture of its prey might give occaſion to the report of its faſcinating powers. *Linnæus* ſays, *Inſecta in fauces faſcino revocat.*

"miſtaken

" miſtaken, for I never diſſected one, but content-
" ed myſelf with opening its mouth, and ſlightly
" inſpecting it.

" You may imagine that a toad generally deteſted
" (altho' one of the moſt inoffenſive of all animals)
" ſo much taken notice of and befriended, excited
" the curioſity of all comers to the houſe, who all
" deſired to ſee it fed, ſo that even ladies ſo far
" conquered the horrors inſtilled into them by
" nurſes, as to deſire to ſee it. This produced in-
" numerable and improbable reports, making it
" as large as the crown of a hat, &c. &c. This I
" hope will account for my not giving you parti-
" culars more worth your notice. When I firſt
" read the account in the papers of toads ſucking
" cancerous breaſts, I did not believe a word of it,
" not thinking it poſſible for them to ſuck, having
" no lips to embrace the part, and a tongue ſo
" oddly formed; but as the fact is thoroughly ve-
" rified, I moſt impatiently long to be fully in-
" formed of all particulars relating to it."

Notwithſtanding theſe accounts will ſerve to point out ſome errors I had adopted, in reſpect to this reptile in my firſt ſheet, yet it is with much pleaſure I lay before the public a more authentic hiſtory, collected from Mr. *Arſcott*'s ſecond favor; the anſwer points out my queries, which it is needleſs to repeat.

Tehott,

Tehott, Nov. 1, 1768.

"In reſpect to the queries, I ſhall here give the "moſt ſatisfactory anſwers I am capable of.

"Firſt, I cannot ſay how long my father had "been acquainted with the toad before I knew it; "but when I firſt was acquainted with it, he uſed "to mention it as the old toad I've known ſo many "years; I can anſwer for thirty-ſix years.

"Secondly, No toads that I ever ſaw appear-"ed in the winter ſeaſon. The old toad made "its appearance as ſoon as the warm weather came, "and I always concluded it retired to ſome dry "bank to repoſe till the ſpring. When we new-"lay'd the ſteps I had two holes made in the "third ſtep on each, with a hollow of more than a "yard long for it, in which I imagine it ſlept, as "it came from thence at its firſt appearance.

"Thirdly, It was ſeldom provoked: neither "that toad (nor the multitudes I have ſeen tor-"mented with great cruelty) ever ſhewed the leſt "deſire of revenge, by ſpitting or emitting any "juice from their pimples. Sometimes upon tak-"ing it up it would let out a great quantity of clear "water, which, as I have often ſeen it do the ſame "upon the ſteps when quite quiet, was certainly its "urine, and no more than a natural evacuation.

"Fourthly, A toad has no particular enmity "for the ſpider; he uſed to eat five or ſix with his "millepedes (which I take to be its chief food) that "I generally provided for it, before I found out

"that

" that fleſh maggots, by their continual motion,
" was the moſt tempting bait; but when offered it
" eat blowing flies and humble bees that come from
" the rat-tailed maggot in gutters, or in ſhort any
" inſect that moved. I imagine if a bee was to be
" put before a toad, it would certainly eat it to its
" coſt; but as bees are ſeldom ſtirring at the ſame
" time that toads are, they can ſeldom come in
" their way, as they ſeldom appear after ſun-riſing,
" or before ſun-ſet. In the heat of the day they
" will come to the mouth of their hole, I believe,
" for air. I once from my parlour window obſerved
" a large toad I had in the bank of a bowling-
" green, about twelve at noon, a very hot day, ve-
" ry buſy and active upon the graſs; ſo uncommon
" an appearance made me go out to ſee what it
" was, when I found an innumerable ſwarm of
" winged ants had dropped round his hole, which
" temptation was as irreſiſtible as a turtle would
" be to a luxurious alderman.

" Fifthly, Whether our toad ever propagated its
" ſpecies I know not, rather think not, as it al-
" ways appeared well, and not leſſened in bulk,
" which it muſt have done, I ſhould think, if it
" had diſcharged ſo large a quantity of ſpawn as
" toads generally do. The females that are to
" propagate in the ſpring, I imagine, inſtead of
" retiring to dry holes, go into the bottom of
" ponds, and lay torpid among the weeds; for to
" my great ſurprize in the middle of the winter,

" having

"having for amuſement put a long pole into my "pond, and twiſted it till it had gathered a large "volume of weed, on taking it off I found many "toads, and having cut ſome aſunder with my "knife, by accident, to get off the weed, found "them full of ſpawn not thoroughly formed. I "am not poſitive, but think there were a few "males in *March*: I know there are thirty males * "to one female, twelve or fourteen of whom I have "ſeen clinging round a female: I have often diſ-"engaged her, and put her to a ſolitary male, to "ſee with what eagerneſs he would ſeize her. "They impregnate the ſpawn as it is drawn † out in "long

* Mr. *John Hunter* has aſſured me, that during his reſidence at *Belleiſle*, he diſſected ſome hundreds of toads, yet never met with a ſingle female among them.

† I was incredulous as to the *obſtetrical* offices of the male toad, but ſince the end is ſo well accounted for, and the fact eſtabliſhed by ſuch good authority, belief muſt take place.

Mr. *Demours*, in the Memoirs of the *French* Academy, as tranſlated by Dr. *Templeman*, *vol.* I. 371. has been very particular in reſpect to the male toad, as acting the part of an *Accoucheur*; his account is curious, and clames a place here:

"In the evening of one of the long days in ſummer, Mr. "*Demours* being in the King's garden perceived two toads "*coupled together* at the edge of an hole, which was formed "in part by a great ſtone at the top.

"Curioſity drew him to ſee what was the occaſion of the "motions he obſerved, when two facts equally new ſurprized "him; the *firſt* was the extreme difficulty the female had in "laying her eggs, inſomuch that ſhe did not ſeem capable

" long ſtrings, like a necklace, many yards long,
" not in a large quantity of jelly, like frogs ſpawn.
" *N. B.* After having held a female ſome time in
" my hand, I have, to try if there was any ſmell,
" put my finger a foot under water to a male,
" who has immediately ſeized it, and ſtuck to it as
" firmly as if it was a female. *Quere*, Would they
" ſeize a finger or rag that had touched a can-
" cerous ulcer?

" Sixthly,

" of being delivered of them without ſome aſſiſtance. The
" *ſecond* was, that the male was mounted on the back of
" the female, and exerted all his ſtrength with his hinder
" feet in pulling out the eggs, whilſt his fore-feet embraced
" her breaſt.

" In order to apprehend the manner of his working in the
" delivery of the female, the reader muſt obſerve, that the
" paws of theſe animals, as well thoſe of the fore-feet as of
" the hinder, are divided into ſeveral toes, which can per-
" form the office of fingers.

" It muſt be remarked likewiſe, that the eggs of this ſpe-
" cies of toads are included each in a membranous coat that
" is very firm, in which is contained the embryo; and that
" theſe eggs, which are oblong and about two lines in
" length, being faſtened one to another by a ſhort but very
" ſtrong cord, form a kind of chaplet, the beads of which
" are diſtant from each other about the half of their length.
" It is by drawing this cord with his paw that the male
" performs the function of a midwife, and acquits himſelf
" in it with a dexterity that one would not expect from ſo
" lumpiſh an animal.

" The preſence of the obſerver did not a little diſcompoſe
" the male; for ſome time he ſtopped ſhort, and threw on

" the

"Sixthly, Inſects being their food, I never ſaw "any toad ſhew any liking or diſlike to any plant*.

"Seventhly, I hardly remember any perſons ta- "king it up except my father and myſelf: I do "not know whether it had any particular attach- "ment to us.

"Eighthly, In reſpect to its end, I anſwer this "laſt quere. Had it not been for a tame raven, I "make no doubt but it would have been now liv- "ing; who one day ſeeing it at the mouth of its "hole, pulled it out, and although I reſcued it, "pulled out one eye, and hurt it ſo, that notwith- "ſtanding its living a twelvemonth it never enjoyed "itſelf,

"the *curious impertinent* a fixed look that marked his diſ- "quietneſs and fear; but he ſoon returned to his work with "more precipitation than before, and a moment *after* he "appeared undetermined whether he ſhould continue it or "not. The female likewiſe diſcovered her uneaſineſs at the "ſight of the ſtranger, by motions that interrupted ſome- "times the male in his operation. At length, whether the "ſilence and ſteady poſture of the ſpectator had diſſipated "their fear, or that the *caſe* was urgent, the male reſumed "his work with the ſame vigour, and ſucceſsfully performed "his function."

* This queſtion aroſe from an aſſertion of *Linnæus*, that the toad delighted in filthy herbs. *Delectatur Cotula, Actæa, Stachyde fœtidi.* The unhappy deformity of the animal ſeems to be the only ground of this as well as another miſre- preſentation, of its conveying a poiſon with its pimples, its touch, and even its breath. *Verrucæ lacteſcentes venenatæ infuſæ tactu, anhelitu.*

" itſelf, and had a difficulty of taking its food, " miſſing the mark for want of its eye: before " that accident had all the appearance of perfect " health."

What Mr. *Pitfield* communicated to me ſerves farther to evince the patient and pacific diſpoſition of this poor animal. If I am thought to dwell too long on the ſubject, let it be conſidered, that thoſe who have moſt unprovoked enemies, and feweſt friends, clame the greateſt pity, and warmeſt vindication. This reptile has undergone all ſorts of ſcandal; one author makes it the companion of an atheiſt *; and *Milton* † makes the devil itſelf its inmate; in a word, all kind of evil paſſions have been beſtowed on it: It is but juſtice therefore to ſay ſomething in behalf of an animal that has of late had ſo many trials of its temper, from experiments occaſioned by the new diſcovery of its cancer-ſucking qualities. It has born all the handling, teizing, bagging, &c. &c. without the leſt ſign of a vindictive diſpoſition; but has even made itſelf a ſacrifice to the diſcharge of its office: this I know from the reſult of much enquiry; would I could contradict what is aſſerted, of the inefficacy of the tryals made of them in the moſt horrible of diſeaſes; for at this time I myſelf cannot bring one proof of the ſucceſs. But I would not have any one

* A great toad was ſaid to have been found in the lodgings of *Vanini*, at *Toulouſe*. *Vide Johnſon's* Shakeſpear.

† *Paradiſe Loſt*.

one diſcouraged from the purſuit of the remedy. Heaven opens to us gradually its favors: the *loadſtone* was for ages a meer matter of ignorant amaze at its attractive qualities: *mercury* was a ſuppoſed poiſon, and the terror of phyſicians: we now wonder at the powers of electricity, and are ſtill but partially acquainted with its uſes: the toad, the object of horror even in the moſt enlightened times, is found to be perfectly innocent; it has certainly contributed to the eaſe (and as has been ſaid to the cure) of the unhappy cancered; let the following facts ſpeak for themſelves; they come from perſons of undoubted veracity, and will ſufficiently eſtabliſh the truth of the beneficent qualities of this animal.

The firſt paper relating to it is very ingeniouſly drawn up by Mr. *Pitfield*, for the information of Doctor *Littleton*, Biſhop of *Carliſle* (now happy) who immediately honored me with the copy.

Exon, Auguſt 29, 1768.

"Your lordſhip muſt have taken notice of a "paragraph in the papers, with regard to the ap- "plication of toads to a cancered breaſt. A pa- "tient of mine has ſent to the neighborhood of "*Hungerford*, and brought down the very woman "on whom the cure was done. I have, with all "the attention I am capable of, attended the

" operation for eighteen or twenty days, and am
" ſurprized at the phænomenon. I am in no ex-
" pectation of any great ſervice from the applica-
" tion: the age, conſtitution, and thoroughly can-
" cerous condition of the perſon, being uncon-
" querable barriers to it. How an ail of that
" kind, abſolutely local, in an otherwiſe ſound
" habit, and of a likely age, might be relieved, I
" cannot ſay. But as to the operation, thus
" much I can aſſert, that there is neither pain nor
" nauſeouſneſs in it. The animal is put into a
" linen bag, all but its head, and that is held to
" the part. It has generally inſtantly laid hold of
" the fouleſt part of the ſore, and ſucked with
" greedineſs until it dropped off dead. It has
" frequently happened that the creature has ſwolen
" immenſely, and from its agonies appeared to be
" in great pain. I have weighed them for ſeveral
" days together, before and after the application,
" and found their increaſe of weight, in the dif-
" ferent degrees, from a drachm to near an ounce.
" They frequently ſweat exceedingly, and turn
" quite pale: ſometimes they diſgorge, recover, and
" become lively again. I think the whole ſcene
" is ſurpriſing, and a very remarkable piece of na-
" tural hiſtory. From the conſtant inoffenſiveneſs
" which I have obſerved in them, I almoſt queſtion
" the truth of their poiſonous ſpitting. Many peo-
" ple here expect no great good from the applica-
" tion of toads to cancers; and where the diſorder

is

" is not abſolutely local, none is to be expected;
" where it is, and ſeated in any part, not to be
" well come at for extirpation, I think it is hardly
" to be imagined, but that the having it ſucked
" clean as often as you pleaſe, muſt give great
" relief. Every body knows, that dogs licking of
" ſores cures them, which is, I ſuppoſe, chiefly by
" keeping them clean. If there is any credit to be
" given to hiſtory, poiſons have been ſucked out,

——*Pallentia Vulnera lambit*
Ore Venena trahens.

" are the words of *Lucan* on the occaſion: if the
" people to whom theſe words are applied, did
" their cure by immediately following the injection
" of the poiſon, the local confinement of another
" poiſon brings the caſe to a great degree of ſimi-
" larity.

" I hope I have not tired your lordſhip with my
" long tale, as it is a true one, and in my appre-
" henſion a curious piece of natural hiſtory, I could
" not forbear communicating it to you. I own I
" thought the ſtory in the papers to be an inven-
" tion, and when I conſidered the inſtinctive prin-
" ciple in all animals of ſelf preſervation, I was
" confirmed in my diſbelief; but what I have re-
" lated I ſaw, and all theory muſt yield to fact.
" It is only the *Rubeta*, the land toad, which has
" the property of ſucking; I cannot find any the

" leſt mention of the property in any one of the " old naturaliſts. My patient can bear to have " but one applied in twenty-four hours: the wo- " man who was cured had them on day and " night, without intermiſſion, for five weeks. Their " time of hanging at the breaſt has been from one " to ſix hours."

The other is of a woman who made the experiment, which I give, as delivered to me from " undoubted authority.

About ſix years * ago a poor woman received a cruſh on her breaſt by the fall of a pail; a complaint in that part was the reſult.

Laſt year her diſorder increaſed to an alarming degree; ſhe had five wounds on her breaſts, one exceeding large, from which fragments of bone worked out, giving her vaſt pain; and at the ſame time there was a great diſcharge of thin yellow matter: ſhe was likewiſe reduced to a meer ſkeleton.

All her left ſide and ſtomach was much ſwelled; her fingers doughy and diſcolored.

On the 25th of *September*, 1768, the firſt toad was applied; between that and the 29th ſhe uſed ſeven, and had that night better reſt. She ſwallowed with greater eaſe, for before that time there was ſome appearance of tumor in her neck, and a difficulty of getting any thing down.

* *i. e.* from 1769.

October 16th, the patient better. It was thought proper as winter was coming on, and of courſe it would be very difficult to procure a number of toads, to apply more at a time, ſo three were put on at once. The ſwelling in the arm abated, and the woman's reſt was good.

During theſe tryals ſhe took an infuſion of *Water Parſnep* with *Pulvis Cornacchini.*

December 18th, continued to look ill, but finds herſelf better: two of the wounds were now healed.

She was always moſt eaſy when the toads were ſucking, of which ſhe killed vaſt numbers in the operation.

January 1769. The laſt account that was received, informing that the patient was better.

The remarks made on the animals are theſe:

Some toads died very ſoon after they had ſucked; others lived about a quarter of an hour, but ſome lived much longer: for example, one that was applied about ſeven o'clock ſucked till ten, and died as ſoon as it was taken from the breaſt; another that immediately ſucceeded continued till three o'clock, but dropped dead from the wound, each ſwelled exceedingly, and turned of a pale color.

Theſe toads did not ſeem to ſuck greedily, and would often turn their heads away; but during the time of ſucking were heard to ſmack their lips like a young child.

As thoſe reptiles are apt by their ſtruggles to get out

out of the bag, the open end ought to be made with an open hem, that the ſtring may run the more readily, and faſten tightly about the neck.

It would be improper to quit the ſubject without mentioning the origin of this ſtrange diſcovery, which was owing to a woman near *Hungerford*, who labored under a cancerous complaint in her breaſt, which had long baffled all applications.

The account ſhe gives of the manner in which ſhe came by her knowledge is ſingular, and I may ſay apocryphal. She ſays of herſelf, that in the height of her diſorder ſhe went to ſome church where there was a vaſt crowd: on going into a pew, ſhe was accoſted by a ſtrange clergyman, who, after expreſſing compaſſion for her ſituation, told her that if ſhe would make ſuch an application of living toads * as abovementioned, ſhe would be well.

This dark ſtory is all we can collect relating to the affair. It is our opinion that ſhe ſtumbled upon the diſcovery by accident, and that having ſet up for a cancer doctreſs, ſhe thought it neceſſary to

* I have been told that ſhe not only made uſe of living toads, but permitted the dead ones to remain at her breaſt, by way of cataplaſms, for ſome weeks.

I have been informed that the relation of this ſtrange method of cure was brought over a few years ago by one of our foreign miniſters; and that there is alſo notice taken of it in *Wheeler*'s Travels.

amuſe

amuſe the world with this myſterious relation*. For it ſeems very unaccountable, that this unknown gentleman ſhould expreſs ſo much tenderneſs for this ſingle ſufferer, and not feel any for the many thouſands that daily languiſh under this terrible diſorder: would he not have made uſe of this invaluable noſtrum for his own emolument, or at leſt, by ſome other means have found a method of making it public for the good of mankind?

Here I take leave of the ſubject, which I could not do without expreſſing my doubts, as to the method of the woman's obtaining her information; but in reſpect to the authenticity of this new-diſcovered property of the toad, facts eſtabliſh it beyond diſpute. Let the humane wiſh for ſpeedy proofs of the efficacy; and for the ſatisfaction of the world, let thoſe who are capable of giving indiſputable proofs of the ſucceſs, take the earlieſt opportunity of making the public acquainted with ſo intereſting an affair.

'I have now given without alteration the whole 'of the facts as ſtated in my former edition. They 'are too curious to be loſt; as they may ſerve to

* Mr. *Valentine Greatraks*, who about the year 1664, perſuaded himſelf that he could cure diſeaſes, by ſtroking them out of the parts affected with his hand; and the famous *Bridget Boſtock*, of *Cheſhire*, who worked cures by virtue of her faſting ſpittle, both came by their art in a manner ſupernatural, but by *faith many were made whole*.

'give

'give to after-times a proof of the belief of the 'age, and the fair tryal made of a moſt diſtaſt-'ful remedy in the moſt dreadful of complaints.'

GLAIN NAIDR, 30.

This reminds me of another *Welch* word that is explanatory of the cuſtoms of the antients, ſhewing their intent in the uſe of the plant *Vervaine* in their luſtrations; and why it was called by *Dioſcorides Hierobotane*, or the ſacred plant, and eſteemed proper to be hung up in their rooms.

The *Britiſh* name *Cas gan Cythrawl*, or the Devil's averſion, may be a modern appellation, but is likewiſe called *Y Dderwen fendigaid*, the holy oak, which evidently refers to the *Druids* groves.

Pliny informs us, that the *Gauls* uſed it in their incantations, as the *Romans* and *Greeks* did in their luſtrations. *Terence*, in his *Andria*, ſhews us the *Verbena* was placed on altars before the doors of private houſes in *Athens*; and from the ſame paſſage in *Pliny* *, we find the *Magi* were guilty of the moſt extravagant ſuperſtition about this herb. Strange it is that ſuch a veneration ſhould ariſe for a plant endued with no perceptible qualities; and ſtranger ſtill it ſhould ſpread from the fartheſt north to the boundaries of *India*. So general a conſent, however, proves the cuſtom aroſe before the different nations had loſt all communication with each other.

* *Lib.* XXV. *cap.* 9.

Her

Her Grace the Dutcheſs Dowager of PORTLAND did me the honor of communicating the following ſpecies.

This is a new kind of SUCKER found near *Weymouth*, which ought to be placed after No. 59. and may be called the

BIMACULATED.

THE HEAD is flat and tumid on each ſide. The BODY taper.

The PECTORAL fins placed unuſually high. It has only one DORSAL fin; placed low, or near the tail.

The TAIL is even at the end.

The color of the head and body is of a fine pink: of the fins whitiſh. On each ſide of the engine of adherence on the belly, is a round black ſpot.

It is figured in Plate XXII. of the natural ſize.

Another will add a new genus to the *Britiſh* fiſh, being of that which *Linnæus* calls *Ophidium*. It muſt find a place after the LAUNCE, *Sand Eel* or *Ammodytes*, under the trivial name of

BEARD-

BEARDLESS. Ophidium imberbe. *Lin. Syſt.* 431. *Faun. Suec.* No 319.
Ophidium flavum et imberbe. *Schonevelde*, 53? *Wil. Icth.* 113. *Raii ſyn. piſc.* 39.

THIS was taken at the ſame place with the former. I have not at this time had opportunity of deſcribing it, therefore am obliged to refer the reader to the writers above cited for the deſcription.

No. II.

OF THE PROLIFICNESS OF FISH.

Fiſh.	Weight. oz.	Weight. dr.	Weight of Spawn. grains.	Fæcundity.	Time.
Carp	25.	5.	2571.	203109.	April 4.
Codfiſh			12540.	3686760.	Dec. 23.
Flounder	24.	4.	2200.	1357400.	March 14.
Herring	5.	10.	480.	36960.	Oct. 25.
Mackrel	18.	0.	1223½.	546681.	June 18.
Perch	8.	9.	765½.	28323.	April 5.
Pike	56.	4.	5100½.	49304.	April 25.
Roach	10.	6½.	361.	81586.	May 2.
Smelt	2.	0.	149½.	38278.	March 21.
Sole	14.	8.	542½.	100362.	June 13.
Tench	40.	0.		383252*.	May 28.

* Some part of the ſpawn of this fiſh was by accident loſt, ſo that the account here is below the reality. *Vide Phil. Tranſ.* 1767.

No.

No. III.

OF THE METHOD OF MAKING ISINGLASS IN ICELAND, FROM THE SOUNDS OF COD AND LING.

THE ſounds of cod and ling bear general likeneſs to thoſe of the *Sturgeon* kind of *Linnæus* and *Artedi*, and are in general ſo well known, as to require no particular deſcription. The *Newfound land* and *Iceland* fiſhermen ſplit open the fiſh as ſoon as taken, and throw the back-bones, with the ſounds annexed, in a heap; but previous to putrefaction, the ſounds are cut out, waſhed from their ſlimes, and ſalted for uſe. In cutting out the ſounds, the parts between the ribs are left behind, which are much the beſt; the *Iceland* fiſhermen are ſo ſenſible of this, that they beat the bones upon a block with a thick ſtick, till the *Pockets*, as they term them, come out eaſily, and thus preſerve the ſound entire. If the ſounds have been cured with ſalt, that muſt be diſſolved by ſteeping them in water, before they are prepared for *Iſinglaſs*. The freſh ſound muſt then be laid upon a block of wood, whoſe ſurface is a little elliptical, to the end of which a ſmall hair bruſh is nailed,

nailed, and with a ſaw-knife, the membranes on each ſide of the ſound muſt be ſcraped off. The knife is rubbed upon the bruſh occaſionally, to clear its teeth, the pockets are cut open with ſciſſars, and perfectly cleanſed of the mucous matter with a coarſe cloth: the ſounds are afterwards waſhed a few minutes in lime-water, in order to abſorb their oily principle; and laſtly, in clear water. They are then laid upon nets, to dry in the air; but, if intended to reſemble foreign *Iſinglaſs*, the ſounds of cod will only admit of that called book, but thoſe of ling both ſhapes. The thicker the ſounds are, the better the *Iſinglaſs*, color excepted; but that is immaterial to the brewer, who is its chief conſumer.

No. IV.

CATALOGUE OF THE ANIMALS DESCRIBED IN THIS VOLUME, WITH THEIR BRITISH NAMES.

REPTILES.

1.	CORIACEOUS Tortoiſe,	Melwioges.
2.	Common Frog,	Llyffant melyn.
3.	Edible Frog,	Llyffant melyn cefn grwm.
4.	Toad,	Llyffant du, Llyffant dafadenog.
5.	Natter Jack.	
6.	Great Frog.	
7.	Scaly Lizard.	
8.	Warty Lizard,	Genau goeg ddafadenog.
9.	Brown Lizard,	frech.
10.	Little Lizard,	leiaf.
11.	Anguine Lizard,	naredig.
12.	Viper,	Neidr, Neidr du, Gwiber.
13.	Snake,	Neidr fraith, Neidr y tomenydd.

It is to *Richard Morris*, Eſq. that the public is indebted for the *Britiſh* names.

14. *Aber-*

14. *Aberdeen* Snake.
15. Blind-worm, or Slow-worm, Pwl dall. Neidr y defaid,

FISH.

16. Common Whale, Morfil Cyffredin.
17. Pike-headed Whale, Penhwyad.
18. Fin fiſh, Barfog.
19. Round-lipped Whale, Trwngrwn.
20. Beaked Whale.
21. Blunt-headed Cachalot.
22. Round-headed, Pengrwn.
23. High-finned, Uchel aden.
24. Dolphin, Dolffyn.
25. Porpeſſe, Llamhydydd.
26. Grampus, Morfochyn.
27. Lamprey, Sea, Llyſowen bendol, Llamprai.
28. Leſſer Lamprey, Lleprog.
29. Pride.
30. Skate, Cath fôr, morcath, Rhaien.
31. Sharp-noſed Ray, Morcath drwynfain.
32. Rough Ray.
33. Fuller Ray.
34. Shagreen Ray.
35. Whip Ray.

36. Electric Ray,	Swithbyſg.
37. Thornback,	Morcath bigog.
38. Sting Ray,	Morcath cefn.
39. Angel fiſh,	Maelgi.
40. Picked Dog fiſh,	Ci Pegod, Picewd.
41. Baſking Shark.	
42. White Shark,	Morgi gwin.
43. Blue Shark,	Morgi glas, y Sierc.
44. Long-tailed Shark,	Llwynog mor.
45. Tope,	Ci glas.
46. Spotted Dog fiſh,	Ci yſgarmes, morgi mawr.
47. Leſſer Dog fiſh.	
48. Smooth Hound,	Ci Llyfn.
49. Porbeagle.	
50. *Beaumaris* Shark.	
51. Angler, common,	Morlyffant.
52. Long Angler,	Morlyffant hir.
53. Sturgeon,	Iſtwrſion.
54. Oblong Diodon,	Heulbyſg.
55. Short Diodon.	
56. Globe Diodon.	
57. Lump Sucker,	Jar-fôr.
58. Unctuous Sucker,	Môr falwen.
59. *Jura* Sucker.	
60. Longer Pipe fiſh.	
61. Shorter.	
62. Little,	Mor Neidr.
63. Eel,	Llyſowen.
64. Conger,	Mor Llyſowen, Cyngyren.

65. Wolf

65. Wolf fiſh, Morflaidd.
66. Launce, Llamrhiaid, Pyſgod bychain.
67. Morris, Morys.
68. Sword fiſh, Cleddyf byſg.
69. Dragonet, gemmeous.
70. Dragonet, ſordid.
71. Weever, Mor wiber, Pigyn aſtrus.
72. Great Weever.
73. Common Cod fiſh, Codſyn.
74. Hadock, Hadoc.
75. Whiting Pout, Cod lwyd.
76. Bib, Deillion.
77. Poor, Cwdyn ebrill.
78. Coal fiſh, Chwetlyn glas.
79. Pollack, Morlas.
80. Whiting, Chwitlyn gwyn.
81. Hake, Cegddu.
82. Forked Hake.
83. Left Hake.
84. Trifurcated Hake.
85. Ling, Honos.
86. Burbot, Llefen, Llefenan.
87. Three bearded Cod.
88. Five bearded Cod.
89. Torſk.
90. Creſted Blenny.
91. Gattorugine.
92. Smooth Blenny.

93.	Spotted Blenny.	
94.	Viviparous Blenny.	
95.	Black Goby.	
96.	Spotted Goby.	
97.	Bull Head, River,	Pentarw, Bawd y melinydd.
98.	Armed Bull Head,	Penbwl.
99.	Father Laſher.	
100.	Doree,	Sion dori.
101.	Opah.	
102.	Holibut,	Lleden ffreinig.
103.	Plaiſe,	Lleden frech.
104.	Flounder,	Lleden 'ddu.
105.	Dab,	Lleden gennog, Lleden dwfr croyw.
106.	Smear Dab.	
107.	Sole,	Tafod yr hydd, Tafod yr ych.
108.	Smooth Sole.	
109.	Turbot,	Lleden chwith, Torbwt.
110.	Pearl,	Perl.
111.	Whiff.	
112.	Gilt Head,	Peneuryn, Eurben.
113.	Red Gilt Head,	Brôm y môr.
114.	Toothed Gilt Head.	
115.	Wraſſe, antient,	Gwrach.
116.	Ballan.	
117.	Bimaculated.	
118.	Trimaculated.	
119.	Striped.	

120. Gibbous.

120. Gibbous.
121. Goldfinny.
122. Comber.
123. Cook.
124. Perch, common, Perc.
125. Baſſe, Draenog, Gannog.
126. Sea Perch.
127. Ruffe.
128. Black Ruffe.
129. Three ſpined Stickleback, Sil y dom, Pyſgod y gath.
130. Ten ſpined, Pigowgbyſg.
131. Fifteen ſpined, Silod y môr.
132. Mackrel, common, Macrell.
133. Tunny, Macrell Sopaen.
134. Scad.
135. Red Surmullet, Hyrddyn coch.
136. Striped Surmullet.
137. Grey Gurnard, Penhaiarn llwyd, Penhaiernyn.
138. Red Gurnard, Penhaiarn coch.
139. Piper, Pibyd.
140. Sapphirine Gurnard, Yſgyfarnog y môr.
141. Streaked Gurnard.
142. Loche, bearded, Crothell yr afon.
143. Salmon, Gleiſiedyn, Eog, Maran *Talieſin*.
144. Grey, Penllwyd, Adfwlch.
145. Sea Trout.

146.	Trout.	Brithyll.
147.	White Trout.	
148.	Samlet,	Brith y gro.
149.	Charr,	Torgoch.
150.	Grayling,	Brithyll rheſtrog, Glaſgangen.
151.	Smelt,	Brwyniaid.
152.	Gwiniad,	Gwiniedyn.
153.	Pike,	Penhwyad.
154.	Gar Pike,	Môr nodwydd, Corn big.
155.	Saury Pike.	
156.	Argentine.	
157.	Atherine.	
158.	Mullet,	Hyrddyn, Mingrwn.
159.	Flying Fiſh.	
160.	Herring,	Pennog, yſgaden.
161.	Pilchard,	Pennog mair.
162.	Sprat,	Coeg Bennog.
163.	Anchovy.	
164.	Shad,	Herlyn, Herling.
165.	Carp,	Carp, Cerpyn.
166.	Barbel,	Barfbyſg, y Barfog.
167.	Tench,	Gwrachen, Iſgretten.
168.	Gudgeon,	Crothel.
169.	Bream,	Brêm.
170.	Rud,	Rhuddgoch.
171.	Crucian.	
172.	Roach,	Rhyfell.
173.	Dace,	Darſen, Golenbyſg.

174. Graining.

174. Graining.
175. Chub, Penci, Cochgangen.
176. Bleak, Gorwynbyſg.
177. Minow, Crothel y dom, Bychan byſg.
178. Gold Fiſh.

APPENDIX.

179. Bimaculated Sucker.
180. Beardleſs Ophidium.

INDEX.

A.

Page

ABDOMINAL fiſh, - - 46, 282.
Adder, ſea, - - - 123.
Adder, *vide* Viper,
Adder-gems, their ſuppoſed virtues, - - 32.
Αλωπεξ of *Ariſtotle*, a ſpecies of Shark, - 110.
Anchovy, - - - - 347.
Angel-fiſh, - - - - 98.
——— its fierceneſs, - - - 99.
ANGLER, common, - - - 120.
——— long, - - - 123.
Apicius, the chief of epicures, - 272.
APODAL fiſh, - - - - 44, 142.
Ape, ſea, - - - - 110.
ARGENTINE, - - - 327.
Ariſtophanes, his chorus of frogs, - - 11.
Aſinius Celer, the vaſt price he gave for a Surmullet, 272.
ATHERINE, - - - - 328.

B.

B.

Page

Ballan, 246.
Barbel, 357.
——— its roe noxious, 358.
Baſking Shark, the largeſt ſpecies, 101.
——— migratory, 102.
——— yields great plenty of oil, 104.
Baſſe, 257.
Bib, or Blinds, a kind of Cod fiſh, 184.
Billets, young Coal fiſh, 187.
Birdbolt, 199.
Biſcayeners, early engaged in the whale fiſhery, 54.
Bleak, 370.
Blenny, the creſted, 206.
——— ſmooth, 208.
——— ſpotted, 210.
——— viviparous, 211.
Blind-worm, or Slow-worm, 36.
——— a harmleſs ſerpent, *ibid.*
Boat, the five-men, what, 235.
Bony fiſh, 42, 142.
Botargo, what, 331.
Bottle-head, a ſort of Whale, 59.
Branlines, *vide* Samlet.
Bream, 362.
——— ſea, 242.
Bret, 233.
Britiſh names, 402.
Bufonites, what, 16, 154.
Bulcard, 208.
Bull-head, river, 216.
——— armed, 217.

Bull-

Page
Bull-trout, - - - 296.
Burbot, - - - - - 199.
Butterfiſh, - - - 210.
But, a name for the Flounder, - - 229.

C.

CACHALOT, genus of Whales producing ſperma-ceti, 61.
——— the blunt-headed, - - *ibid.*
——— round-headed, - - 63.
——— high-finned, - - 64.
Cancers attempts to cure by the application of toads, 17.
CARP, - - - - 353.
—— its longevity, - - - 354.
—— very tenacious of life, - - 355.
—— golden, - - - - 374.
CARTILAGINOUS fiſh, their characters, - 41, 75.
CETACEOUS fiſh, their characters, - 41, 47.
Char, - - - - 305.
—— gilt and red, probably the ſame fiſh, - 308.
Chub, - - - - 368.
Coal-fiſh, - - - 186.
Coble, a ſort of boat, - - 235.
COD-FISH, the common, - - 172.
——— fiſh affecting cold climates, - *ibid.*
——— vaſt fiſhery off *Newfoundland*, - 173.
——— very prolific, - - 177.
——— three bearded, - - 201.
——— five bearded, - - 202.
Conger, how differing from the eel, - 147.
——— an article of commerce in *Cornwall*, - 148.
Comber, - - - - 252.

Cook,

Page
Cook, - - - 253.
Crucian, - - - - 364.

D.

Dab, - - - - 230.
—— ſmear, - - - *ibid.*
Dace, or Dare, - - - 366.
Digby, Sir *Kenelm*, ſingular experiment of, - 31.
Diodon, oblong, - - - 129.
——— ſhort, - - - - 131.
——— globe, - - - 132.
Dog-fiſh, the picked, - - - 100.
——— greater, - - - 113.
——— leſſer, - - - 115.
Dolphin, - - - - 65.
——— venerated by the ancients, - - 66.
——— falſely repreſented by painters, - 67.
——— a diſh at great tables, - - 68.
Doree, - - - - 221.
Dragonet, gemmeous, - - - 264.
——— the ſordid, - - 167.
Drizzles, what, - - - 198.

E.

Eel, common, will quit its element, - 142.
—— impatient of cold, - - - 143.
—— generation of, - - - *ibid.*
—— moſt univerſal of fiſh, - - 146.
—— deſpiſed by the *Romans*, - - *ibid.*

Page
Eel-pout, - - - 199.
——— viviparous, - - - 211.
Eft, *vide* Lizard,
Elvers, - - - - 148.

F.

Father-laſher, - - - 218.
Fin-fiſh, a ſpecies of whale, - - 57.
Finſcale, *vide* rud.
Fire-flaire, *vide* ſting-ray.
FISH, the fourth claſs of animals, - - 39.
Fiſhing-frog, *vide* angler.
FLOUNDER, - - - 226.
——— or fluke, - - 229.
Flying-fiſh, - - - 333.
Forked beard, greater, - - - 193.
——— leſſer, - - - 195.
Fox, ſea, - - - - 110.
FROG, common, - - - 9.
——— generation of the, - - 10.
——— periodical ſilence, - - 11.
——— edible, - - - 13.
——— great, - - - 20.

G.

Garum, a ſort of pickle much eſteemed by the antients, 265.
Gattorugin, - - - 207.
GILT-HEAD, lunulated, or gilt-poll, - 240.
——— red, - - - 242.
——— toothed, - - - 243.

Glain

Page
Glain Neidr, in high eſteem with the old *Britons*, 32.
Glouceſter city, preſents the King annually with a lamprey pye. - - - 77.
Goby, the black, - - - 213.
——— ſpotted, - - - 215.
Goldfiſh, - - - - 374.
Goldfinny, - - - - 251.
Graining, - - - - 367.
Grampus, - - - - 72.
Grayling, - - - - 311.
Grey, - - - - 295.
Grigs, - - - - 145.
Groundling, *vide* Loche.
Gudgeon, - - - - 361.
——— ſea, - - - - 213.
Guffer, - - - - 211.
Gurnard, grey, - - - 276.
——— red, - - - 278.
——— ſapphirine, - - 280.
——— ſtreaked, - - - 281.
——— yellow, *vide* Dragonet.
Gwiniad, - - - - 316.

H.

Hadock, - - - - 179.
——— vaſt ſhoals of, - - - 181.
——— ſaid to be the fiſh out of whoſe mouth St. *Peter* took the tribute-money - 182.
Hake, - - - - 191.
—— leſſer, or forked-beard, - - 193.
—— leſt, or leſſer forked-beard, - - 195.
—— trifurcated. - - - 196.

Henry





Page
Henry I. killed by a ſurfeit of lampreys, - 77.
HERRING, - - - 335.
——— its migrations, - - 336.
——— fiſhery, - - - 341.
Hierobotane, account of that plant, - - 396.
Hippo, the dolphin of, - - - 66.
Holibut, its vaſt ſize, - - - 226.
——— voraciouſneſs, - - - 227.
Hull, the town of, early in the whale fiſhery, - 55.

I.

Ichthyocolla, or Iſinglaſs, - - 127.
——— method of making, - - 400.
JUGULAR fiſh, - - - 44, 164.

K.

King-fiſh, - - - - 223.
Kit, a ſort of dab, - - - 230.

L.

LAMPREY, - - - 76.
——— not the *muræna* of the antients, - 78.
——— its vaſt tenaciouſneſs, - - *ibid.*
——— the leſſer, - - - 79.
Lampern, *vide* Pride.
Lantern-fiſh, or ſmooth ſole, - - 232.
LAUNCE, - - - - 156.
——— beardleſs, - - - 398.

Page

Ling, - - - - - - 197.
—— a great article of commerce, - - - *ibid.*
Lizard, ſcaly, - - - 21.
——— warty, - - - 23.
——— brown, - - - - 24.
——— little, - - - - 25.
——— anguine, - - - - *ibid.*
——— green, - - - - 22.
——— a large kind, probably exotic, - *ibid.*
——— larves of lizards, moſtly inhabitants of water, 24.
Loche, bearded, - - - 282.
——— ſea, - - - 201.
Lump-fiſh, or ſucker, - - - 133.
——— much admired by the *Greenlanders*, - 135.

M.

Mackrel, - - - 264.
——— horſe, - - - 269.
Maſon, Mr. his ſpirited tranſlation of *Pliny*'s account of the *ovum anguinum*, - - - 32.
Miller's thumb, - - - 216.
Minow, - - - - 373.
Morris, - - - - 158.
Mulgranock, - - - - 208.
Mullet, - - - 329.
——— the puniſhment of adulterers, - 331.
Muræna, not our lamprey, - - - 78.
Μυσίκητος of *Ariſtotle*, our whale, - - 50.
Muſculus of *Pliny*, the ſame, - - 52.
Myxine, - - - - 235.

N.

Page
Natter-jack, a ſpecies of toad, - - 19.
Newt, *vide* Lizard.
Newfoundland, its bank, - - - 173.
North-capers, *vide* Grampus.

O.

Ocher, an able navigator in K. *Alfred*'s days, - 54.
Opah, - - - - 223.
Otter-pike, or leſſer Weever, - - 171.
Ovum anguinum, a druidical bead, - - 32.

P.

Paddock-moon, what, - - - 12.
Parrs, or young coal-fiſh, - - 187.
Pearl, - - - - 238.
Pearls, artificial, what made of, - - 371.
PERCH, much admired by the antients, - 254.
——— a crooked variety found in *Wales*, - 256.
——— ſea, - - - 258.
Phyſeter, or blowing whale, - - 58.
PIKE, - - - - 320.
—— its longevity, - - - 322.
—— gar, or ſea-needle, - - - 324.
—— ſaury, - - - 325.
Pilchard, - - - - 343.
——— its important fiſhery, - - 344.

Page

PIPE-FISH, longer, - - - 138.
——— ſhorter, - - - 140.
——— little, or ſea-adder, - - 141.
Piper, - - - - 279.
Plaiſe, - - - - 228.
Pliny, his account of the *Ovum anguinum*, - 31.
Pogge, - - - - 217.
Pollack, the whiting, - - 188.
Poor, or power, a kind of codfiſh, - - 185.
Porbeagle, a ſpecies of ſhark, - - 117.
Porpeſſe, - - - - 69.
——— a royal diſh, - - - 71.
Pout, a ſpecies of codfiſh, - - 183.
Pride, - - - - 80.

Q.

Quin, Mr. the actor, firſt recommended the eating of the *Doree* in *England*, - - 222.

R.

RAY, - - - - 82.
——— ſharp noſed, - - - 83.
——— rough, - - - 85.
——— fuller, - - - 86.
——— ſhagreen, - - - 87.
——— whip, - - - 88.
——— electric, its numbing quality, - 89.
——— ſting, - - - 95.
——— the *Trygon* of the antients, - - *ibid.*
——— fables relating to it, - - *ibid.*
REPTILES, the third claſs of animals, - 1, 7.

Page
Roach, - - - - - 365.
Rockling, - - - - 201.
Rud, - - - - - 363.
Ruffe, - - - - - 259.
—— the black, or black fiſh of Mr. *Jago*, - 260.

S.

SALMON, - - - - - 284.
——— leaps, - - - 286.
——— fiſhery, - - - 287.
——— trout, *vide* bull-trout,
Samlet, - - - - - 303.
Sand-eel, *vide* Launce,
Scad, - - - - - 269.
Schelly, *vide* Gwiniad.
Scombraria, an iſle, why ſo called, - - 265.
Scorpion, ſea, - - - 218.
Seneca, his account of the luxury of the *Romans* in reſpect to fiſh, - - - 272.
SERPENT, - - - - - 26.
——— ringed, or ſnake, - - 33.
——— *Aberdeen*, - - - 35.
Shad, - - - - - 348.
Shakeſpear, his fine compariſon of adverſity to a toad-ſtone, - - - - 17.
SHARK, - - - - - 98.
——— picked, - - - 100.
——— baſking, - - - 101.
——— ——— its vaſt ſize, - - 103.
——— white, its voraciouſneſs, - - 106.
——— blue, - - - 109.
——— long-tailed, - - - 110.
——— ſpotted, - - - 113.

Page

SHARK, leſſer-ſpotted, . . . 115.
——— ſmooth, . . . 116.
——— *Beaumares*, . . . 118.
Skate, ... 82.
——— its method of engendering, . . . 83.
Slow-worm, a harmleſs ſerpent, . . 36.
Smelt, ... 313.
Smear-dab, ... 230.
Smooth-ſhan, . . . 208.
Snail, ſea, ... 135.
Snake, inoffenſive, . . . 34.
Sole, ... 231.
——— ſmooth, . . . 232.
Sparling, *vide* Smelt.
Sprat, ... 346.
Sperma ceti, what, . . . 62.
Sperma ceti, whale, *vide* Cachalot.
STICKLE-BACK, three ſpined, . . 262.
——————— vaſt ſhoals in the *Welland*, . *ibid.*
——————— ten ſpined, . . 262.
——————— fifteen ſpined, . . . 263.
Sting-ray, its dangerous ſpine, . . 95.
STURGEON, ... 124.
SUCKER, lump, . . . 133.
——— unctuous, . . . 135.
——— *Jura*, . . . 137.
——— bimaculated, . . 397.
Sun fiſh, ... 129.
SURMULLET, the red, . . 271.
——————— extravagantly prized by the *Romans*, *ibid.*
——————— the ſtriped, . . 274.
SWORD-FISH, . . . 160.
——————— manner of taking, . . 161.
——————— fiſhermen's ſong previous to the capture, 162.
——————— *Xiphias* of *Ovid*, . . *ibid.*

T.

	Page
Tench,	359.
—— the phyſician of the fiſh,	*ibid.*
THORACIC fiſh,	45, 213.
Thornback,	93.
Threſher, its combat with the Grampus,	111.
Toad, its deformity,	14.
—— uſed in incantations,	15.
—— its poiſon a vulgar error,	17.
—— attempts to cure cancers by means of it,	*ibid.*
—— ſaid to be found in the midſt of trees and rocks,	18.
—— a farther account of this animal,	379.
Toad-ſtone, what,	16.
Tomus Thurianus, what,	161.
Tope,	111.
Torgoch, *vide* Charr.	
Torſk, or Tuſk,	203.
TORTOISE, coriaceous,	7.
—— farther account of,	379.
Trout,	297.
—— ſea,	296.
—— crooked,	299.
—— gillaroo,	300.
—— white,	302.
Tub-fiſh,	280.
Tunny,	266.
—— the fiſhery very antient,	267.
—— taken notice of by *Theocritus*,	*ibid.*
Turbot,	233.
—— fiſhery,	234.
Twaite, a variety of ſhad,	351.

U.

Page

Ulyſſes, ſaid to have been killed with the ſpine of the *Trygon*, or Sting-ray, . . 95.

V.

Viper, not prolific, . . . 26.
——- its teeth, . . . 27.
——- effects of the bite, and its cure, . 30.
——- uſes, . . . *ibid.*
——- the black, . . . 27.

W.

Weever, ... 169.
——— its ſtroke ſuppoſed to be poiſonous, . 170.
——— the great, . . . 171.
Whale, the common, . . . 50.
——— vaſt ſize, . . . *ibid.*
——— place, . . . 55.
——— fiſhery, . . . 54.
——— the *Engliſh* engaged late in it, . 53.
——— pike-headed, . . . 56.
——— round-lipped, . . 58.
——— beaked, . . . 59.
Whalebone, what, . . . 51.
Whiff, a ſort of flounder, . . 238.
White-bait, ... 371.

Page
Whiting, ... 190.
Whiting-pout, . . . 183.
Whiting-pollack, *vide* Pollack.
Whiſtle-fiſh, . . . 201.
White-horſe, . . . 86.
WOLF-FISH, . . . 151.
——— curious ſtructure of its teeth, . 153.
WRASSE, or old wife, . . . 244.
——— bimaculated, . . 247.
——— trimaculated, . . . 248.
——— ſtriped, . . . 249.
——— gibbous, . . . 250.

THE END.

ERRATA.

Page 5, line 25, *for* Cærulæa *read* Cæruleæ. P. 6, l. 8, *for* naturáliſts *read* naturaliſt. P. 8, l. 5, *for* twelve *read* eleven. P. 15, l. 9, *for* horor *read* horror. *Ibid.* l. 14, *for* intrails *read* entrails. P. 57, l. 10, *for* penniformi *read* pinniformi. P. 78, note, *for tripatinam read tripatinum. Ibid. for* appellabatur, ſumma &c. *read* appellabatur ſumma &c. P. 79, l. 10, *for* Lampetra *read* Lampetræ. P. 85, l. 17, *for* ſhire of *read* ſhire of *Roſs*. P. 86, l. 16, *for* ſpiney *read* ſpiny. P. 87, l. 9, *(and paſſim) for* encreaſes *read* increaſes. P. 89, l. 18, *for* κι *read* καὶ. P. 91, l. 1, *for* acknowledgements *read* acknowlegements. P. 98, l. 21, *for* in *read* is. P. 105, l. 29, *for* ſedement *read* ſediment. P. 114, note, *for* 130 *read* 176. P. 129, l. 16, *for* ορθραγορσκ *read* ορθραγορισκ. P. 131, *for* DIADON *read* DIODON. P. 141, l. 8, *for* ſerpentinum *read* ſerpentinus. P. 185, l. 18, *for* nuſance *read* nuiſance. P. 204, l. 1, *for* favoured *read* favored. P. 212, l. 12, *for* reſt *read* rays. P. 215, l. 11, and 230, l. 9, *for* ſappharine *read* ſapphirine. P. 216, l. 3, *for* alepedotus *read* alepidotus. P. 217, l. 16, *for* verrucoſo *read* verrucis. *Ibid.* l. 17. *for* bifidis *read* bifido. P. 239, l. 3, *for* on the ſide *read* on the left ſide. P. 254, margin, *for* XXVI *read* XXVII. P. 273, note *, *for* p. 222 *read* 265. P. 276, l. 10, *for* vario *read* varia. P. 281, l. 24, *for Mullis read Mullus*. P. 286, l. 21, *for Aberglaſtyn read Aberglaſlyn*. P. 288, l. 29, *for* back, fin *read* back-fin. P. 295, l. 1, *for* cinereous *read* cinereus. P. 329, l. 12, *for* radiate *read* radiata. P. 353, l. 9, *for* Cyyrinus *read* Cyprinus. *Ibid.* l. 10, *for* pinna *read* pinnæ. *Ibid.* l. 15, *for* 162 *read* 245. P. 355, l. 18, *for* this *read* the. P. 387, l. 28, *for fætidi read fætidâ*.

ADDITIONAL ERRATA.

Vol. I. P. [xxvi] l. 10, *for* two *read* three. *Ibid.* l. 12, *for* three *read* two. P. 210, l. 9, *for* freſh meat *read* freſh mice. P. 212, l. 2, *for* paper color *read* paler color. P. 217, l. 20, *after* middle feathers, *add* of the tail. P. 231, l. 7, *after* prodigious height, *add* of the ſingle ſtones of. P. 311, l. 14, *after* diſſection, *add* in April. P. 350, l. 23, *for* riſe, *read* riſing. P. 354, l. 12, *after* Wood-lark, *add* and Tit-lark. P. 408, l. 18, *for* ſtanding, *read* ſtunted. P. 411, l. 19, *for* nook *read* noon. Vol. III. P. 359, l. 24, *for* Mr. Diaper, *read* Moſes Browne.

CANCELS.

Vol. I.	E 3 - -	Pages 53, 54.
	M 3 - -	157, 158.
	P 3 - -	205, 206.
	Q 4 - - -	223, 224.
	C c 3 - -	381, 382.
Vol. III.	M 6 - -	171, 172.
	X 8 - -	319, 320.
	Z 8 - -	351, 352.
	A a - - -	353, 354.

In MAY *next will be publiſhed,*

BRITISH ZOOLOGY,

CLASS V.

By THOMAS PENNANT, *Eſq;*

CONTAINING ABOUT

NINETY ELEGANT PLATES

OF THE

Shell and Cruſtaceous Animals of *Great Britain,*

WITH DESCRIPTIONS.

N. B. This Work will be publiſhed both in QUARTO and OCTAVO.